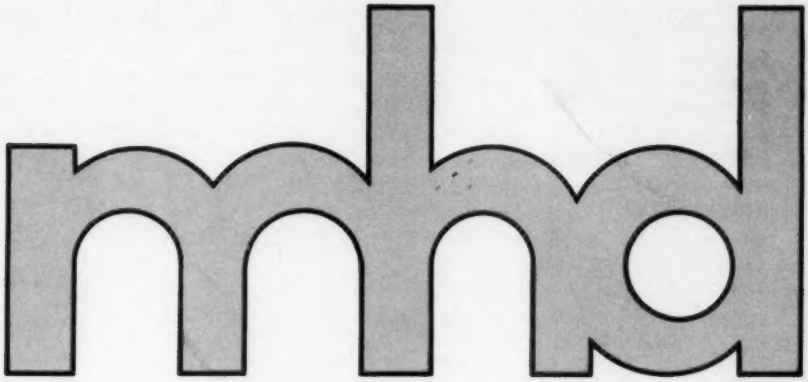
mental health digest

Vol. 5, No. 2, February 1973



Feature: CHANGING SEX ROLES AND PERSISTENT STEREOTYPES—see pages 1–18

1 **Sex-Role Stereotypes: A Current Appraisal**
by Inge K. Boverman, Susan R. Vogel, Donald M. Broverman, Frank E. Clarkson, and Paul S. Rosenkrantz

7 **Androgyny as a Life Style**
by Joy D. Osofsky and Howard J. Osofsky

11 **Who Likes Competent Women? Competence, Sex-Role Congruence of Interests, and Subjects' Attitudes Toward Women as Determinants of Interpersonal Attraction**
by Janet T. Spence and Robert Helmreich

14 **Sex Role and "Cooperation" in the Game of Chicken**
by David W. Conrath

19 **Parental Interference and Romantic Love: The Romeo and Juliet Effect**
by Richard Driscoll, Keith E. Davis, and Milton E. Lipetz

23 **Social and Epidemiologic Factors in Psychosomatic Disease**
by C. David Jenkins

26 **A Comparison of Two Group Brainstorming Procedures**
by Thomas J. Bouchard, Jr.

29 **Effect of Sensory Overload on Psychological State**
by Louis A. Gottschalk, John L. Haer, and Daniel E. Bates

32 **The Rights of the Subject in Social Research: An Analysis in Terms of Relative Power and Legitimacy**
by Herbert C. Kelman

42 **The Dilemma of Genetic Engineering**
by James J. Nagle

45 **Psychiatry in Prebaccalaureate Education**
by David R. Hawkins and Vamik D. Volkan

47 **Mental Health News Digests**

The *Mental Health Digest* is a monthly publication designed to reflect the whole spectrum of mental health and to present a broad sampling of scientific subject matter and professional points of view. It contains condensations of material selected from the current mental health literature. The condensations are published with the approval of the authors and publishers for use in the *Mental Health Digest* only. Readers interested in particular digests are urged to consult the journal or other source in which the material first appeared or to ask the authors for reprints.

Material contained in the *Digest* does not necessarily reflect the opinions, official policy, or position of the National Institute of Mental Health.

Editorial Advisory Board

Bertram S. Brown, M.D., Chairman

William E. Bunney, M.D.
Harry P. Cain II, Ph.D.
Morris E. Chafetz, M.D.
Robert A. Cohen, M.D., Ph.D.
John C. Eberhart, Ph.D.
James A. Goodman, Ph.D.
James D. Isbister
Thomas F. A. Plaut, Ph.D.
Luther D. Robinson, M.D.
Gian C. Salmoiraghi, M.D., Ph.D.
Claudewell S. Thomas, M.D.
Francis N. Waldrop, M.D.
Louis A. Wienckowski, Ph.D.

Editor: Lorraine Bouthilet, Ph.D.

to subscribe

The *Mental Health Digest* is available on subscription from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Subscription price: $6.50 a year; Single copy: 55¢. For foreign mailing, add $1.75. (No additional postage is required for Canada, Mexico, and Central and South American countries except Argentina, Brazil, British Honduras, French Guiana, Guyana, and Surinam.) Please make check or money order payable to the Superintendent of Documents. An annual subscription runs for 12 consecutive issues and begins when orders are processed. However, a subscription may be backdated to include issues already published in the current volume when the issues are available. Issues for back years, when available, are sold at the single copy price. The expiration date is printed on the top line of the address label. Change of address and complaints about nonreceipt of issues should be sent to the Superintendent of Documents, and should include the old address, preferably a mailing label, as well as the new address.

Use of funds for printing this publication approved by the Director of the Bureau of the Budget, May 20, 1968.

Sex-Role Stereotypes: A Current Appraisal

Inge K. Broverman, Susan Raymond Vogel, Donald M. Broverman, Frank E. Clarkson, and Paul S. Rosenkrantz

Sex-role standards can be defined as the sum of socially designated behaviors that differentiate between men and women. Psychologists have accepted sex roles as essential to personality development and function; thus psychopathologists have considered gender identity to be a crucial factor in personal adjustment. Developmentalists focus upon the conditions and processes which facilitate successful internalization of appropriate sex-role standards. The positive values of sex-role standards have rarely been questioned.

Recently investigators have expressed concern over possible detrimental effects of sex-role standards upon the full development of capabilities of men and women. Traditional sex-role patterns are also being challenged by the new feminist movement. During such a period of revaluation, there is need for scrutiny of the content of sex-role standards and an examination of the influence that these standards have upon individual behaviors. In the mid-1960's traditional sex-role patterns were in a state of flux; we anticipated that fluidity would appear in definitions of sex roles, and we devised a questionnaire that assesses individual perceptions of "typical" masculine and feminine behavior. This questionnaire has now been administered to almost a thousand subjects, providing normative indices of the content of sex-role standards. In addition, individual differences in sex-role perception have been related to a number of independent variables, thus providing some answers to questions about the antecedents and consequents of varying perceptions of sex roles.

Development of the Sex-Role Questionnaire

Approximately 100 men and women enrolled in undergraduate psychology classes were asked to list all characteristics, attributes, and behaviors on which they thought men and women differed. All items which occurred at least twice were selected for inclusion. These items span a wide range of content, e.g., interpersonal sensitivity, emotionality, aggressiveness, dependence-independence, maturity, intelligence, activity level, gregariousness. The 122 items were put into bipolar form with the two poles separated by 60 points.

Men and women subjects in other samples were given the questionnaire with instructions to indicate the extent to which each item characterized an adult man (masculinity response), an adult woman (femininity response), and themselves (self response).

Scoring the sex-role questionnaire—The scoring procedure was based upon responses from 74 college men and 80 college women. Those items on which at least 75 percent agreement existed among subjects of each sex were termed "stereotypic." The 41 items that met this criterion are listed in Table 1.

Forty-eight of the remaining items had differences between the average masculinity response and the average femininity response, but the agreement as to the direction of the differences was less than 75 percent. These items were termed "differentiating" items. The remaining items were termed "nondifferentiating."

Pervasiveness of Sex-Role Sterotypes

Numerous investigators have noted

Table 1. Stereotypic Sex-Role Items

Competency Cluster: Masculine pole is more desirable	
Feminine	Masculine
Not at all aggressive	Very aggressive
Not at all independent	Very independent
Very emotional	Not at all emotional
Does not hide emotions at all	Almost always hides emotions
Very subjective	Very objective
Very easily influenced	Not at all easily influenced
Very submissive	Very dominant
Dislikes math and science very much	Likes math and science very much
Very excitable in a minor crisis	Not at all excitable in a minor crisis
Very passive	Very active
Not at all competitive	Very competitive
Very illogical	Very logical
Very home-oriented	Very worldly
Not at all skilled in business	Very skilled in business
Very sneaky	Very direct
Does not know the way of the world	Knows the way of the world
Feelings easily hurt	Feelings not easily hurt
Not at all adventurous	Very adventurous
Has difficulty making decisions	Can make decisions easily
Cries very easily	Never cries
Almost never acts as a leader	Almost always acts as a leader
Not at all self-confident	Very self-confident
Very uncomfortable about being aggressive	Not at all uncomfortable about being aggressive
Not at all ambitious	Very ambitious
Unable to separate feelings from ideas	Easily able to separate feelings from ideas
Very dependent	Not at all dependent
Very conceited about appearance	Never conceited about appearance
Thinks women are always superior to men	Thinks men are always superior to women
Does not talk freely about sex with men	Talks freely about sex with men
Warmth-Expressiveness Cluster: Feminine pole is more desirable	
Feminine	Masculine
Doesn't use harsh language at all	Uses very harsh language
Very talkative	Not at all talkative
Very tactful	Very blunt
Very gentle	Very rough
Very aware of feelings of others	Not at all aware of feelings of others
Very religious	Not at all religious
Very interested in own appearance	Not at all interested in own appearance
Very neat in habits	Very sloppy in habits
Very quiet	Very loud
Very strong need for security	Very little need for security
Enjoys art and literature	Does not enjoy art and literature at all
Easily expresses tender feelings	Does not express tender feelings at all easily

the existence of sex-role stereotypes, i.e., consensual beliefs about the differing characteristics of men and women. These stereotypes are widely held, persistent, and highly traditional. Our findings confirm the existence of pervasive and persistent sex-role stereotypes.

In our initial study subjects were drawn from New England institutions of higher learning, e.g., a 2-year community college, a 4-year city college, women's and men's schools, and parochial schools. Although the subsamples differed with respect to religion and social class, they did not differ with respect to sex-role perceptions.

Responses to the sex-role questionnaire have now been obtained from 599 men and 383 women, both married and single, who range in age from 17 to 60 years and in education from the elementary school level to the advanced graduate degree level. These subjects were divided by sex and into three age groups—17–24 years, 25–44 years, and 45–56 years. Although some variation exists from group to group, high consensus was found on a considerable number of items, and this was independent of age, sex, religion, education level, or marital status.

Social Desirability of the Stereotypic Items

Men and masculine characteristics are more highly valued in our society than are women and feminine characteristics. Both boys and girls between 6 and 10 years express greater preference for masculine things and activities than for feminine activities; between five and twelve times as many women than men recall having wished they were of the opposite sex; mothers of daughters only are happier about a new pregnancy than are mothers of sons; the interval between the birth of the first child and conception of the second is longer when the first child is a boy than when it is a girl; and the likelihood of having a third child is greater if the first two children are both girls than both boys.

The valuation, or social desirability, of the characteristics designated as masculine or feminine by the questionnaire responses follows this same pattern.

Content of the sex-role stereotypes—To explore the dimensions reflected by the stereotypic items, factor analyses were performed separately on the masculinity and femininity responses. Results indicated that the stereotypic items consist of two orthogonal domains, i.e., male-valued items and female-valued items. The male-valued items reflect a "competency" cluster—being independent, objective, active, competitive, logical, skilled in business, worldly, adventurous, able to make decisions easily, self-confident, always acting as a leader, ambitious. A relative absence of these traits characterizes the stereotypic perception of women—dependent, subjective, passive, noncompetitive, illogical, etc.

The female-valued stereotypic items consist of attributes such as gentle, sensitive to the feelings of others, tactful, religious, neat, quiet, interested in art and literature, able to express tender feelings.

Self Concepts and Sex-Role Stereotypes

These distinctions between the male-valued and female-valued components of the sex-role stereotypes have important implications for the self concepts of men and women. The social desirability of an item is known to increase the likelihood of that item's being reported as self-descriptive on personality tests. This implies that women ought to reject the negatively valued feminine characteristics in their self-reports. However, our find-

ings indicate that women incorporate the negative aspects of femininity (relative incompetence, irrationality, passivity, etc.) into their self concepts along with the positive feminine aspects (warmth and expressiveness).

In a study of college men and women, the mean self-concept scores of the men over the stereotypic items were significantly different from the mean self-concept scores of the women, indicating that male and female subjects perceived themselves as differing along a dimension of stereotypic sex differences. However, the women's self concepts were significantly less feminine than their perceptions of women in general, and the self concepts of the men were significantly less masculine than their perceptions of the "average" man.

Ideal Sex Roles

Evidence suggests that the existing stereotypic differences between men and women are approved of and idealized by large segments of society. One hundred thirty-seven college men were given the questionnaire with instructions to indicate that point for each item which is most desirable for an adult man and that point which is most desirable for an adult woman. The masculine pole was judged more desirable for men than women on 28 of the 29 male-valued stereotypic items (competency cluster). These data indicate that college men feel that it is desirable for women to be less independent, less rational, less ambitious, etc., than men.

The 12 stereotypic female-valued items (warmth-expressiveness cluster) present a different picture. On only 7 of the 12 items was there significant agreement that the feminine pole is more socially desirable for women than for men. Thus these male subjects reserved for men those masculine traits which are socially desirable for adults in general, and also considered 40 percent of the desirable feminine characteristics as equally desirable for men. This sample of college men, also perceived male-valued traits as significantly less desirable for women than are female-valued traits for men.

Another study investigated ideal sex-role concepts of both men and women. Men and women indicated that point on each item which is ideal for men and for women, respectively. Results show that the concepts of the ideal man and the ideal woman in both men and women subjects closely parallel the male and female sex-role stereotypes. Furthermore, a college population, a group which tends to be critical of traditional social norms and conventions, nonetheless believes that the existing sex-role stereotypes are desirable.

Sex-Role Stereotypes and Judgments of Mental Health

The literature points to a positive relationship between the social desirability of behaviors and clinical ratings of the same behaviors in terms of normality-abnormality, adjustment, and health-sickness. Given the relationship between masculine versus feminine characteristics and social desirability, on the one hand, and social desirability and mental health on the other, we expected that clinicians would maintain distinctions in their concepts of healthy behavior in men and women paralleling stereotypic sex differences. Secondly, we predicted that behavioral attributes which are regarded as healthy for an adult, sex unspecified, and presumably indicative of an ideal health pattern will more often be considered by clinicians as healthy for men than for women.

The sample consisted of 79 practicing mental health clinicians. They

were given the sex-role questionnaire with one of three sets of instructions: *Male* instructions asked respondents to "think of normal, adult men, and then indicate on each item that pole to which a mature, healthy, socially competent adult man would be closer"; *female* instructions were to describe "a mature, healthy, socially competent adult woman"; finally *adult* instructions asked for the description of a "healthy, mature, socially competent adult person."

The results indicated that men and women clinicians did not differ in their descriptions of adults, women, and men. Within each set of instructions there was high agreement as to which pole reflected the more healthy behavior, indicating that these clinicians did have generalized concepts of mental health. We also found high agreement between the pole judged as more healthy for an adult by the clinicians and the pole chosen as more desirable for adults by college students.

Comparisons of the clinicians' judgments of the healthy men and the healthy women on the competency cluster indicated that the desirable masculine pole was ascribed to the healthy man significantly more often than to the healthy woman. But only about half of the socially desirable feminine characteristics were ascribed more often to women than to men. On the face of it, the finding that clinicians tend to ascribe the male-valued, competency cluster traits more often to healthy men than to healthy women may seem trite. However, a consideration of the content of these items reveals a negative assessment of women. Clinicians are suggesting that healthy women differ from healthy men by being more submissive, less independent, less adventurous, less objective, more easily influenced, less aggressive, less competitive, more excitable in minor crises, more emotional, more conceited about their appearance, and having their feelings more easily hurt.

The clinicians' ratings of a healthy adult and a healthy man did not differ. However, a difference did exist between the ratings of the healthy adult and the healthy woman. Our hypothesis that a double standard of health exists for men and women was confirmed: The standard of health is applied to men only; healthy women are perceived as significantly less healthy by adult standards.

Behavioral Correlates of Sex-Role Stereotypes

Family size—It has been argued that most societies hold "pronatalistic" attitudes which prescribe for women the role of childbearer and rearer. Effective functioning in this feminine role encourages childbearing and earns social approval, while acceptance of an alternative role tends to reduce childbearing and earn social disapproval. Working women do indeed desire and have fewer children than do nonworking women.

The sex-role stereotypes delineated by our research appear to be pronatalistic. Women who are perceived and perceive themselves as incompetent might feel inadequate to the challenges and stresses of employment. Accordingly, we investigated the relationship between self-perception in the context of stereotypic sex roles and the number of children a woman has. Mothers with high competency self concepts had significantly fewer children than mothers who perceived themselves to be low on the competency items. Interpretation of these findings is not clear. Do women who perceive themselves as relatively more competent choose to have fewer children? Or does a woman's estima-

tion of her own competency diminish as a function of her preoccupation with home and family. Preliminary analyses of new data suggest that self concept may be primary. College women with relatively high competency self concepts perceive their ideal future family size as significantly smaller than college women who see themselves as relatively less competent. These data demonstrate a predictable and systematic relationship between sex-role attitudes—specifically, self concept in a sex-role context—and concrete sex-role behaviors.

Maternal employment — We have conceptualized sex-role stereotypes as attitudinal conditions and sex-role behaviors. The following study demonstrates the relationship between sex-role attitudes and maternal employment.

We reasoned that a person's perception of societal sex roles, and of the self, may be influenced by the degree of role differentiation that one experiences in one's family. Maternal employment status is central to the role differentiation that occurs between parents. If the father is employed outside the home while the mother remains a full-time homemaker, their roles are polarized for the child. But if both parents are employed outside the home, their roles are more likely to be perceived as similar.

Accordingly, we examined the relationship between mother's employment status and sex-role perceptions of college students. Daughters of employed mothers perceived smaller differences between men and women than did daughters of homemaker mothers on both the competency cluster and the warmth-expressiveness cluster. Sons of employed mothers perceived a smaller difference between women and men on the warmth-expressiveness cluster than did sons of homemaker mothers. However, the perceptions of the male subjects did not differ on the competency cluster. Daughters of employed mothers perceived women less negatively on the competency characteristics than did daughters of homemaker mothers.

The results suggest that the stereotypic conception of sex roles are not immutable.

Our research demonstrates the existence of sex-role stereotypes for men and women contrary to the phenomenon of "unisex" currently touted in the media. While many individuals are aware of the prejudicial effects of sex-role stereotypes from personal experience and hearsay, empirical evidence gives added weight to this fact. The finding that sex-role stereotypes continue to be held by large and relatively varied samples of the population and furthermore are incorporated into the self concepts of both men and women indicates how deeply ingrained these attitudes are in our society. One can speculate that eventual change in sex-role concepts will be associated with far-reaching changes in the life styles of both women and men.

Condensed with permission from the *Journal of Social Issues*, 28(2): 59–78, 1972. Copyright 1972 by the Society for the Psychological Study of Social Issues. Reprints of original article from Inge K. Broverman, Ph.D., Principal Psychologist, Psychology Department, Box 57, Worcester State Hospital, Worcester, Mass. 01613

Androgyny as a Life Style

Joy D. Osofsky and Howard J. Osofsky

Androgyny may be defined in several ways; the common practical definition used here is "a society with no sex-role differentiation." Present-day society is experiencing great disruption and change due to the interaction of unusual and rapidly moving political, social, and technological factors. Many alternate life styles have been presented as possible solutions to present problems and androgyny as a life style may offer the most viable option for change in traditional relationships in the foreseeable future.

Whenever a period of rapid or erratic change occurs, one turns to societal institutions for stability and comfort. The family has been such a refuge where roles of individuals have been defined and accepted, and it has been assumed that one can depend upon such continuities for reassurance. But it is no longer possible to define the family as a unit in which the father works outside of the home to provide financial support and in which the mother works within the home.

Within the family more women are working—some for family support, others for personal satisfaction. With overpopulation becoming a serious concern, many question the validity and morality of having one-half the population devote their lives solely to family life and the rearing of children. In fact, the emphasis upon having children is changing, perhaps, in part, related to the conclusions of demographers that limitation of procreation is necessary for the survival of our society.

This paper, in dealing with the issue of androgynous relationships, analyzes some traditional practices of socialization and education of individuals in society and considers some of the changes which are logical, and likely to be accomplished.

Socialization of Sex Roles: Learning, Abilities, and Achievement

Children are taught behaviors defined as appropriate for individuals of their sex by parents, teachers, and others. The processes through which children incorporate these behaviors, attitudes, and values are reinforcement, modeling (adults displaying sex-typed behaviors), and identification.

While reinforcement, modeling, and identification are important processes, certain events or practices comprise the medium through which these processes occur. Parents have traditionally dressed their sons and daughters in different ways, given them different toys, encouraged certain behaviors for a child of one sex (which have been discouraged for a child of the opposite sex), and participated in sex-specified activities themselves. Therefore, an important question is whether there are innate differences in ability which would warrant differential treatment, or whether differences in ability and resulting behavior have been learned through the acculturation processes with our society.

Few sex differences in abilities and behaviors are present when children are young; differentiation increases after acculturation has occurred with age. One important sex difference related to age is in language proficiency. Young girls generally do better than young boys; at a later point, the males gradually catch up with the females. Also, more young boys than girls tend to be stutterers.

Several plausible explanations are possible. The most likely is that sex

differences in abilities and behaviors are learned through socialization processes. Identification with the same-sex parent or with a same-sex adult is important for the child's sex-role development, but most models for children in the home and school have been female. For boys, there have been few males with whom to identify; language learning, therefore, may have a "sissy" connotation. Further, in elementary school, male children are not encouraged to concentrate on achievement for career goals; for young females school performance and achievement are encouraged. The increase in male children's verbal proficiency would be expected with increased reinforcement for educational success as future career expectations are emphasized. Females have shown a leveling-off and decline in the earlier verbal competence; this decrease is understandable with relatively less reinforcement for educational success. More male models for boys to emulate in the higher grades, and fewer female models for girls to identify with in other than wife and mother roles, may contribute to the reversal in language proficiency.

In the preschool and primary years there is little difference in science achievement among girls and boys, but during junior high school boys do better and in high school this sex difference is markedly increased. These discrepancies may be due to differences in interests and encouraged interests, rather than in basic abilities. Sex differences in arithmetic achievement have been similar to those reported for science achievement.

Although slower maturational processes may play a role in males' development, the primary reason for boys' early difficulty and later success would seem to relate to the traditional thinking that intellectual achievement at an early age is "feminine" and at a later age is "masculine." Conversely, for girls, motivation toward mastery has decreased with age. Conflicts have arisen over being competitive with boys and girls' inhibition of intellectual performance has increased during adolescence and adulthood, except where females have overcome strong cultural pressures.

These data lend support to the suggestion that sex differences have been learned. It is possible to assume that changes in the sex-role learning of females and males, which could be accomplished through altering socialization practices would result in different patterns of sex-role development.

Femininity and Masculinity

Although definitions of femininity and masculinity vary for different ages, certain traits emerge as culturally appropriate. The definitions in the following section are culture-bound and seem to be changing. Their usefulness may be questioned, but they existed.

Males should seem tall, have a muscular physique, and facial and body hair. Females should have an attractive face and body, be pretty and small, and have little facial and body hair. Males have been encouraged to be verbally and physically aggressive, whereas females have been discouraged and even prohibited from showing these traits.

It has not been desirable for females to manifest the competency required of males. At the same time, males have been encouraged to inhibit passivity, dependency, and conformity, all of which have been encouraged among females. Males have been taught to show interpersonal dominance with men and women, initiation of sexual behavior and conquests, and concern with acquisition of money and power. Females have been taught to

be submissive with males, to inhibit overt signs of sexual desire, and to cultivate domestic skills. A double standard in sexual behavior is changing with availability of contraceptives and loosening of moral standards among younger people.

When an individual has deviated from societal norms, problems have arisen in self-perceptions and in societal conscriptions and judgments. Men have not been expected to demonstrate warm nurturant behaviors and have not been encouraged to be dependent upon others for support. Women have been taught to be nurturant toward children and submissive toward other people; they have been encouraged to be dependent upon males in order to be considered feminine and "real women" by societal standards. Interestingly, college men have scored high in femininity on the masculinity-femininity scale, and college women have scored high in masculinity, indicating contradictions between societal definitions of masculinity and femininity and those of more educated people.

When asked to judge whether toys are masculine or feminine, school children consider knives, boats, planes, trucks, and cement mixers to be masculine and dolls, cribs, dishes, and nurses' equipment to be feminine. There is also evidence that children, at least at an early age, consider books and other things associated with school to be feminine. Because of these societally proscribed definitions of femininity and masculinity, working women have faced a difficult dilemma, not only because of male peers and employers, but also because of strong internal conflicts.

Some Thoughts Concerning the Future

What changes are taking place and what are the prospects for future change in the socialization and education of women and men in American society? Although traditional sex roles still represent the accepted norm, many variations are evident that are altering definitions of sex-role development. There is greater acceptance of and encouragement of women's participating in meaningful work. There is more sharing of traditional household responsibilities by husbands and wives. Alternative marital and child-rearing patterns are becoming more common.

The socialization process itself will of necessity change. Women and men will experience greater opportunities in role choice than are presently available. Both men and women are likely to benefit from androgynous changes. The benefits of personal fulfillment for females are logical. The potential benefits for males have been less widely appreciated but they are present—an opportunity for greater individual freedom and a chance for more meaningful relationships with women.

Appropriate "adjustment" should depend upon both individual inclinations and the good of society. Definitions of "adjustment" must allow for variation and freedom; the needs of society neither benefit from nor require arbitrary conformity. A well-adjusted male may enjoy being a responsible executive. He may also—or instead—like being nurturant and catering, doing the cooking, and taking care of the children. A well-adjusted female may enjoy working full-time in a responsible executive position; she may wish to share household responsibilities with her husband or allocate most of them to him. Changing role definitions for women in society should occur concurrently with changes for men and socialization patterns should be determined by individual inclinations and abilities rather

than by the supposedly biological grounds of sex.

In achieving these goals many changes may be made and much research is needed. Beginning when the child is young, patterns of socialization and education can be changed. At birth the differentiation in treatment of infants by sex can be eliminated. Female babies need not be dressed only in feminine clothes and male babies in masculine outfits. Patterns of dressing infants spread to treatment of them with expectations for males including aggressive behavior, and those for females including passive behavior. More research is needed in this area, but it is likely that changes in adult behavior toward infants would result in fewer sex-typed behaviors assigned to females and males.

The mother has had primary responsibility and involvement in the care of the young child. It has been assumed that she, because of her sex, is better able to care for children. This situation is likely to change. Both parents may take an active role in childrearing. Not only would this allow the father more rewards, but it would expose the child to a male figure who is nurturant and concerned about childrearing. Much exciting work could result from a reinvestigation of the role of the father in childrearing and from consideration of the effects of alternate styles of maternal behavior. It is logical to expect that children would benefit from having both parents participating in childrearing with additional behaviors and styles present to be modeled.

When the child enters school, major changes could be made. Children at this age should be raised with full involvement of both parents. This is not to suggest that mother and father need be home at all times, but that they each make an active commitment to the child. It is probably desirable that children be exposed to male and female teachers at all levels in school. It is also logical that school children have textbooks which depict females and males participating in many positions in society. Both women and men will likely be shown participating in work, homemaking, and childrearing activities. Investigating the effects and meanings of such changes would represent important and innovative research.

Through covert and overt counseling most counselors and teachers have encouraged girls to get married and be good wives and mothers. Careers have usually been presented as an alternative if marriage is not achieved or if families need the money. The same counselors have encouraged males to compete, behave aggressively, and pursue careers in order to gain esteem and support a family. Males have rarely been provided with alternative options to such achieving behaviors. Assessments of the effects of alternate forms of education, counseling, and opportunities upon sex-role development, anticipations, and achievement would be expected to yield fruitful findings. Many more people would be expected to develop life styles consistent with their abilities and desires rather than those patterned as appropriate for their sex.

Condensed with permission from *The Family Coordinator*, 21(4):411–418, 1972. Copyright 1972 by The National Council on Family Relations. Reprints of original article from Joy D. Osofsky, Ph.D., Assistant Professor of Psychology, Temple University, Philadelphia, Pa. 19122

Who Likes Competent Women? Competence, Sex-Role Congruence of Interests, and Subjects' Attitudes Toward Women as Determinants of Interpersonal Attraction

Janet T. Spence and Robert Helmreich

Studies of interpersonal attraction have demonstrated a large consistent effect for degree of competency of the stimulus person. Other things being equal, the actor who plays the role of a competent effective individual has been found to be better liked than one who plays an incompetent role. Investigations employing only male subjects appear disproportionately often, however, and despite generalizations from these experiments they have actually demonstrated that men like competent men.

But what about the gender of the stimulus person whose attractiveness is being determined? Is a competent woman liked more, by either men or women, than an incompetent one? And competent at what? Conventional stereotypes exist about what kinds of activities, vocations, and interests are more appropriate for men and what kinds are more appropriate for women. Men may regard competency in a woman who pursues feminine occupations as tolerable or even as a positive virtue that enhances her attractiveness. Men might not be as favorably disposed, however, toward women who exhibit competency in more "masculine" pursuits.

The proposition that men resent and dislike women who successfully challenge them at their own game is a widely held point of view, but both men and women rate masculine activities as more important and prestigeful than feminine ones. Thus men might find such women more worthy of their respect and liking than their incompetent counterparts or than women with feminine interests.

Many women accept the traditional roles assigned to them, and they may respond negatively to competent women, particularly ones with masculine interests. However, women's attitudes toward their roles are changing so that women as a group, in judging other women at least, may respond more favorably than men to competent females of the "new breed."

These speculations are based on the assumption that both men and women are homogeneous in maintaining once traditional sets of beliefs about the role and status of women. However, changes are taking place, and it is difficult to predict the contemporary modal view. Thus, this investigation explored some interactive effects of degree of competency and sex-appropriateness of interests in determining the attractiveness of a female stimulus person.

Summary of design—The subjects were 267 male and 343 female college students. At the beginning of the semesters during which the subjects were tested, the CPI Femininity Scale (FS) and the Attitudes toward Women Scale were administered.

The content of the Attitudes toward Women Scale (AWS) consists of 55 statements to which the subject responds on a 4-point scale: Agree Strongly, Agree Mildly, Disagree Mildly, and Disagree Strongly. The items describe the roles, rights, and privileges of women in such areas as vocational and educational pursuits, dating and courtship, sexual behavior, and marital roles.

The Evaluation Questionnaire contained five questions pertaining to the stimulus person's likability, two referring to social interactions, and two to work relationships. The fifth question ("The applicant is the kind of person I would———to date" for men and "The applicant is the kind of person I would———as a friend" for women) was scored only for men because of the unique, sexual element.

Subjects were tested in groups of 5 to 15. All groups were instructed that they were participating in a study of the relative accuracy of personal evaluations derived from live versus videotaped interviews, that they would be watching taped excerpts from job interviews, and that they would be asked to fill out a questionnaire evaluating the applicant. They were then told that the first applicant was an upperclass woman student at the University who had applied to be a freshman orientation advisor. Each group was shown one of the four tapes. Following completion of the questionnaire they were given an explanation of the purpose of the study and asked not to discuss it with other students.

The "applicant" was played by the same young woman, an upperclass student. Her hair, make-up, and dress were neat but casual and were designed to be unexceptionable in all respects. She spoke in a matter-of-fact, neutral manner. At the beginning the applicant was seen sitting in an office, facing a desk behind which a nonvisible male "interviewer" was seated. The interviewer was saying, "Now you've told me some of the reasons you're interested in being an orientation advisor, suppose you tell me a little about your academic background."

In the Competent-Masculine condition, the applicant described herself as a senior physics major with an A– average who was being encouraged by her professors to go on to a doctorate, and who looked forward to a professional career. She enjoyed sports and was coaxed to admit that she was a tournament tennis player. She liked history and biography, was chairman of a campus group on ecology, had taught lifesaving, and had directed a program for tutoring disadvantaged highschoolers in mathematics and science. Her Incompetent counterpart had the same interests but her attainments were modest, e.g., she barely managed a C average, hoped to get a technician's job after graduation, liked sports but admitted to being clumsy, and had only thought about joining campus groups or had dropped out of activities to save time for studying. In contrast to the Competent applicant, she avoided eye contact with the interviewer, was self-deprecating in manner, and less relaxed.

Parallel scripts were used in the two Feminine conditions to convey Competence or Incompetence, but interests varied. The applicant was portrayed as a fine arts major, specializing in interior design; she designed and made her own clothes, cooked and played bridge as hobbies, was not particularly interested in athletics; and was involved in (or had thought about) a campus musical club and tutoring disadvantaged students in English composition.

The results were quite contrary to what was expected. Rather than derogating the female stimulus persons who were masculine in their interest patterns, the subjects found them more likable than their feminine counterparts, the Competent Masculine stimulus person being liked most of all. This bias was evidenced not merely in likability, but in ratings of other desirable characteristics, the Masculine stimulus persons being judged to be better adjusted, more in-

telligent, and more sincere. All groups preferring the Competent stimulus persons to the parallel Incompetent stimulus persons, with the disconcerting exception of the traditional males in their responses to the *feminine* figures.

The preference for the Masculine stimulus persons was particularly evident in women. This promasculine bias was marked in the women who were most strongly feminist in their attitudes. This subgroup of women not only reacted favorably to the Competent Masculine stimulus person, but, unlike their less liberated sisters, were almost as positive in their reactions to the masculine stimulus person who was incompetent. To these women, competency in masculine activities was apparently not the element of critical importance; it was the attempt that counted.

The results obtained from our "liberal" women subjects are subject to several interpretations. One possibility is that even "liberated" women may accept at face value stereotypic notions about the superiority of men and the traits that make them so. Thus, rather than proclaiming that "Female is fantastic" or attempting to develop new, genderless standards of behavior, they may try, perhaps without awareness, to gain a superior status by assimilating masculine characteristics and values. Even young women with more traditional values may partially share these views. They may not care to emulate masculine behaviors personally, but they may not necessarily react unfavorably to other women who do.

The liberal males showed the same kind of tolerance of the Incompetent Masculine stimulus person as the liberal females and much preferred her to the Feminine Incompetent. Ironically, however, their masculine bias was not as strong as the women's in the case of the Competent stimulus persons. Thus, these males, joined by those of an intermediate attitude level, rated the Competent Feminine stimulus person as favorably on several of the likability items as the masculine one, something none of the groups of women had done.

The most complex set of results was obtained from the males with traditional attitudes. In common with other groups, they found most worthy of their liking and respect the stimulus person who could be regarded as masculine by conventional standards not only because of her interests but also because of her competency. They found least likable the stimulus persons whose characteristics were contradictory. Thus, the most "womanly" stimulus person, i.e., the one who was "feminine" by virtue of both her interests and her incompetency, was rated more favorably than the Competent Feminine stimulus person. The Masculine Incompetent stimulus person was liked even less. If women try to do "masculine things," the traditional males apparently believe, then they should do them well.

These findings may point up the importance of the experimental setting. Those in which a subject is asked to react to a stimulus person, seen as being at some social distance from tem, may elicit quite different responses from situations which encourage closer identification or social interactions with the stimulus person and tend to elicit the subject's imaginings about how tey might be made to feel.

Condensed with permission from the *Journal of Applied Social Psychology*, 2(3): 197–213, 1972. Copyright 1972 by Scripta Publishing Company. Reprints of original article from Janet T. Spence, Ph.D., Department of Psychology, University of Texas at Austin, Mezes Hall, Austin, Tex. 78712

Sex Role and "Cooperation" in the Game of Chicken

David W. Conrath

Experimental games, especially the Prisoner's Dilemma, have become common environment for research in interpersonal behavior, particularly for research on conflict and conflict resolution. This paper concerns itself with sex role as it relates to choice behavior in one game of conflict, "Chicken" (See Figure 1).

A previous study using the Prisoner's Dilemma environment, found that females were more cooperative than males when playing against a 75 percent matching program, and less cooperative when playing against a 25 percent matching program (in each case the female strategy had a higher expected reward). Males were more cooperative than females when pitted against a program that matched the subject's previous move. In this case continued cooperative choices led to the highest financial reward. One might conclude that females were more "rational" (capable of earning more money) in an instantaneous matching game, a game of the "one-shot" variety, whereas males were more "rational" when the optimal strategy required the consideration of a longer time horizon.

If a subject views the game over a relatively longer time horizon, it is reasonable to assume that he might use his choices to bring about a long-run result which is most satisfactory to him, one which if possible is both stable and profitable. In the Prisoner's Dilemma this would result in behavior designed to lead to a series of CC outcomes. In the game of Chicken, the "best" series is less obvious; with the off-diagonal outcomes (CD and DC) one cannot improve his payoff by changing his choice unilaterally. The maximum payoff can be obtained by playing D if the other party will play C. But it may be difficult to get the other party to play C consistently while one is choosing D; the other party would see himself being taken as a fool. Hence stability may require a CC outcome over the long run. In any case, to reach a "satisfactory" stream of outcomes, one must "communicate" via his choice behavior if given no other means of communication.

Our central hypothesis is that males will use their choices to communicate their intentions or desires, whereas females will play as if in a series of "one-shot" games. Accordingly, female subjects will respond to the situation whereas male subjects will attempt to influence it via their choice behavior. This is consistent with the supposition that female subjects will be more likely to play a maximin strategy than will males. D choices in the Prisoner's Dilemma and C choices in Chicken represent the maximin strategy in those environments.

The subjects were 42 male and 42 female undergraduates who volunteered for the experiment as an opportunity to earn money.

Each experimental run was conducted with either four or six subjects of the same sex. As a subject entered the laboratory, he (or she) was directed to one of six carrels that opened onto a passageway, along which the experimenter would pass to collect decisions and to disseminate the results of the most recent play. While the subjects could glimpse each other as they were directed to their seats, once seated they were not allowed to converse. They were also excused separately.

		Party B				
		C		D		*Conditions*
Party A	C	$X_{A'}$	X_B	$Y_{A'}$	W_B	$W_1 > X_1 > Y_1 > Z_1$
	D	$W_{A'}$	Y_B	$Z_{A'}$	Z_B	$2X_1 > (W_1 + Y_1)$

Figure 1. The Game of Chicken

Upon arrival each subject was given a set of instructions and a payoff matrix that indicated how much he would make for any own choice/other choice pairing. The payoff matrix is presented in Figure 2. Actual payoffs per move were to be obtained by multiplying the return indicated by four —for example, each party would win 16 cents if both chose to play C.

Unknown to the subjects they were to play a 32-move game of Chicken against a programed opponent. The first 16 moves of the program were chosen by random number, 70 percent of them to be D, 30 percent to be C. At Move 17 the program reversed these percentages. The percentages were chosen on the basis of a pilot research which indicated that the believability was highest for the percentage breakdown chosen. No student indicated that he thought he was playing against a program.

Each subject made his choice simultaneously with those of all others. The referee then determined the outcome of the moves and informed each subject of the choice combination as well as the resulting payoffs. The referee then waited a minute before collecting the decisions for the next move. In addition, prior to Moves 1 and 4 and every fourth move thereafter, each subject was asked what he thought his opponent's strategy was, and what he thought his opponent's next move would be.

The fundamental measurement was the choice, C or D. The simplest measure is the number or proportion of cooperative (C) choices. Since there is no a priori reason why either C or D ought to predominate as a communicated signal and since our general hypothesis supports the supposition that female subjects are more likely than males to play a maximin strategy (C all of the time), we hypothesize:

(1) Females will make a higher proportion of C choices than will males.

The content of communication only makes sense in the context within which it took place. In an experimental game this context is provided by the previous moves of the participating players. Thus we can observe the previous outcome or sequence of outcomes immediately preceding a particular choice. Since the number of possible combinations of outcomes in relation to the number of moves (n) in the sequence is 4^n we have considered only the immediately preceding two outcomes.

The outcome CC (own choice, other's choice) provides an equity solution, and the greatest total payoff to both parties combined. In the game of Chicken this is likely to be the most stable solution, and if one were a communicating player, one would wish to see it continued. But if playing a one-shot game, the subject would prefer to play D opposite an expected C. Thus we hypothesize that:

(2) Males will make a higher proportion of C choices following an outcome of CC than will females.

Furthermore the differences between communicating and one-shot behavior ought to be emphasized after two successive CC outcomes:

(2a) Males will make a higher proportion of C choices following two successive CC outcomes:

A DD outcome is the least desirable ror both parties. One party attempting to communicate with the other, however, might continue to choose D to indicate his displeasure at the choice of the other party, or choose C in an attempt to lead the other party to a more rewarding outcome. On the other hand, if one is playing a one-shot game, and one assumes that the other party will continue to play D, then the appropriate choice is C. Thus we hypothesize:

(3) Females will make a higher proportion of C choices following an outcome of DD than will males.

This difference in choice behavior ought to exist for any sequence of outcomes when the immediately preceding one is DD, but especially for CD-DD and DD-DD sequences. In these instances the subject has the most reason to believe that the other party will continue to play D, and the subject was not the one who (over the short run) appeared to initiate D play. Thus we hypothesize:

(3a) Females will make a higher proportion of C choices immediately following the sequence of CD-DD outcomes.

(3b) Females will make a higher proportion of C choices following two successive DD outcomes.

Communication vs. one-shot play behavior may also be distinguished by observing a subject's response to his prediction of the other party's play on the move being observed, and his perception of the strategy being followed by the other party. A subject playing a series of one-shot games should choose C when predicting D and choose D when predicting C. A communicating subject should choose C when predicting C, but he might choose either C or D when predicting D. Based on this argument we hypothesize:

		Other Subject: C	Other Subject: D
You	C	you win 4 he wins 4	you win 2 he wins 5
	D	you win 5 he wins 2	you win 1 he wins 1

Figure 2. The Payoff Matrix.

(4a) Males will make more C choices than females when predicting that a C choice will be made by the other party.

(4b) Females will make a higher proportion of C choices when predicting that a D choice will be made by the other party.

Communicating behavior becomes more obvious in the context of a subject's perception of the strategy of the other party. If one assumes that the other party is following a "good guy" strategy (he will always play C no matter what he thinks you are going to do), one would choose C to encourage a continuation of this strategy. On the other hand a one-shot player would choose D if he perceived that the other party held such a strategy. Thus we hypothesize:

(5) Males will make more C choices than females when they perceive that the other party is following an "always play C" strategy.

The contrary would hold when a subject perceives the other party to be following an "always play D" strategy. A one-shot player would play C. However, it is less obvious what a communicator might play, although continued punishment rather than a choice leading to a CC outcome would appear to be more reasonable. We hypothesize:

(6) Females will make more C choices than males, when they perceive that the other party is following an "always play D" strategy.

If the other party is perceived to be following a "tit-for-tat" strategy (he will play C when he thinks you will play C and he will play D when he predicts you will choose D) or a "tat-for-tit" strategy (he will play C when he thinks you will play D and he will play D when he thinks you will choose C), we must now combine choice prediction and strategy perception to derive hypotheses.

A communicator facing a perceived "tit-for-tat" strategy would presumably choose C no matter what he predicted the other party would choose. He would play C, if he predicted C, to ensure and encourage the CC outcome. If he predicted D, he would play C to lead the other party to the CC outcome. Thus only under a C prediction for a "tit-for-tat" strategy would there be a difference in choice behavior. Thus we hypothesize:

(7) Males will make more C choices than females, when they perceive the other party is following a "tit-for-tat" strategy and when they predict he will choose C.

Both parties should choose C when predicting D.

Under a "tat-for-tit" strategy a communicator would presumably wish to encourage the other party to choose C so that the subject would get the best reward if the strategy was to continue. He would choose D opposite a prediction of C to encourage the continuation of C choices by the other party, and he would choose D opposite a prediction of D to encourage the other party to switch to C. Under these circumstances we hypothesize:

(8) Females will make more C choices than males, when they perceive the other party is following a "tat-for-tit" strategy and when they predict he will choose D.

Both males and females should choose D when predicting C.

Experimental Results

The results show that female subjects were on the average somewhat more "cooperative" than male subjects. Thus Hypothesis 1 can be said to have had adequate though not dramatic support.

The results testing Hypothesis 2, while in the direction hypothesized, were not statistically significant. Hypothesis 2a however was supported. Following a sequence of two straight CC outcomes, males chose C 94.2 percent of the time, whereas females made such a choice only 84.0 percent of the time. The difference in these percentages was significant.

The difference in the percentage of cooperative choices following a DD outcome, 44.3 percent for female subjects and 34.4 percent for males, was significant. Hypothesis 3a also had empirical support. The difference in the percentage of C play after successive CD and then DD outcomes—40.4 percent for females and 24.4 percent for males was significant.

The evidence on Hypothesis 3b, though in the direction hypothesized, was not statistically significant.

Contrary to Hypothesis 4a, females were more likely to choose C when they predicted that their opposite party would choose C. They made such a choice 66.4 percent of the time in contrast to 64.0 percent of the male choices in like circumstances. The difference was not significant however. Hypothesis 4b, on the other hand, was strongly supported. Females chose C in 52.9 percent of their play when they predicted the other party would choose D. Males did so only 34.5 percent of the time.

When the subjects thought the other party was playing an always cooperate strategy, females chose C 73.9 percent of the time and males chose C on 74.5 percent of the plays. While the results were in the direction indicated by Hypothesis 5, they were not significant.

Hypothesis 6 found strong support; females were much more likely than males to choose C when facing what they thought was an always-play D strategy. The percentages were 48.1 and 23.7 respectively.

The evidence for Hypothesis 7 was in a contrary direction to that predicted; females were more likely to choose C when they thought they were facing a tit-for-tat strategy and when they predicted the other party would choose C. The sample was so small, however, that no statistical test yielded significant results.

While females were more likely to choose C when they thought they were facing a tat-for-tit strategy and when the other party was thought to be choosing D and this was in the direction indicated by Hypothesis 8, the results were not significant.

The results essentially support the hypothesis that males more than females tend to view the game environmental over a longer time horizon, and therefore appear to be attempting to establish communication. The literature on games usually indicates that male subjects are more likely to exhibit cooperative behavior (choose C) in the Prisoner's Dilemma. But males aren't per se more cooperative. Female subjects chose C significantly more often than did males in our experimental environment of Chicken. In the Prisoner's Dilemma the D choice is the maximin strategy, whereas the C choice is the maximin strategy in Chicken. Since the maximin choice is not particularly communicative, the person following such a strategy would appear to view the game over a short (one-shot) time horizon. Thus what appears to differentiate the sex roles in experimental game behavior is the time perspective of the subjects.

Nevertheless more work needs to be done before we can say that a difference in time horizon perspective truly exists. And if it does exist, further work ought to be done to explain its existence. It is not likely that the biological aspect of the sex difference is the determining factor, but rather the social and educational roles which distinguish the sexes. We would assume that women who have assumed traditionally male roles in society would behave more like our male subjects. If this is true and if our conjecture about time horizon differentials holds, then the value of further research is great.

Condensed with permission from the *Journal of Conflict Resolution*, 16(3):433–443, 1972. Copyright 1972 by Sage Publications, Inc. Reprints of original article from David W. Conrath, Department of Management Sciences, University of Waterloo, Waterloo, Ontario, Canada.

Parental Interference and Romantic Love: The Romeo and Juliet Effect

Richard Driscoll, Keith E. Davis, and Milton E. Lipetz

Romantic love can be thought of as a form of interpersonal attraction that occurs between opposite-sex partners under specifiable social conditions. This study explores the relation between one type of influence on a heterosexual relationship—parental interference—and love in the relationship. The primary hypothesis was derived from several sources: the classical literature on romantic love, studies of group reactions to external opposition, and two generalized theoretical principles. All these considerations lead to the same hypothesis: Parental interference in a love relationship intensifies the feelings of romantic love between the couple.

Parental Interference and Romantic Love

Classical sources — Romantic love has been the subject of countless literary efforts. Shakespeare's *Romeo and Juliet* is such a classic description that we may take it as a paradigm case. The short but intense love affair took place against the background of opposition from the feuding families. The family conflicts did force the lovers to decide whether their primary allegiance was to each other or to their families, and they created difficulties and separations that appear to have intensified the lovers' feelings for each other. In Roman mythology the tale of Pyramus and Thisbe is built on the intensification of love by parental opposition. A culture's literature and folk tales are not taken as necessarily valid reflections of phenomena within that culture, but rather as sources of testable propositions.

General principles — The second basis for the hypothesis derives from studies of group responses to external opposition. Consistent support exists for the observation that opposition to the group or restrictions of the group's activities and goals increases group solidarity. While these dynamics were derived from larger groups, it seems reasonable that they would apply to dyadic heterosexual relationships.

The Concept of Romantic Love

Our conceptualization includes affiliations and dependent needs as well as physical attraction and passion. In our work, the concern was with the contrast between romantic love and conjugal love. Conjugal love is love between mature adults and is thought to evolve out of mutually satisfying interactions, increasing confidence, and personal security in the relationship. Components of any close friendship are also requisite for conjugal love, such as mutual trust, lack of criticalness, appreciation, respect, sharing, genuine knowledge of the other, loyalty, and a willingness to sacrifice for the other in time of need. Many of these components of conjugal love need not be present in romantic love. In fact, the association of romantic love with uncertainty and challenge and a lover's frequent requests for reassurance about his partner's love and fidelity suggest that basic mutual trust is in question during the romantic stage of relationships.

Hypothesis

There are two major hypotheses: Feelings of love become more strongly correlated with trust and acceptance through time. Parental interference in a love relationship intensifies the feelings of romantic love between mem-

bers of the couple.

The study is based on data from the Marital Relations Project, a longitudinal study designed to validate new instruments for assessing the quality of serious dating and marital relations, focusing on interpersonal behaviors and feelings as well as on the evaluation of the effectiveness of three types of marital intervention.

Couples were recruited from a variety of sources and covered the continuum from very happy with their relationship to unhappy, troubled, and probably seeking help from the project. All of the participants were volunteers interested in learning more about their relationships. A total of 140 couples completed the initial questionnaires and comprise the initial sample. All 49 dating couples had a serious commitment to the relationship, and the median length of time that they had been going together on a serious basis was 8 months. Eighteen were living together at that time. For the 91 married couples, the median length of time married was 4 years, although the range was up to 25 years.

The Time 2 questionnaire forms were the same as the Time 1 forms, and they were filled out from 6 to 10 months later. During the interval between Time 1 and Time 2, the couples participated in various forms of marital counselings. Complete Time 2 information had an overall response rate of 79 percent. Of the initial unmarried sample who returned Time 2 questionnaires, 20 couples were still dating, nine had gotten married, and six had broken up. Of the initial married sample, 70 were still married, and six were separated or divorced.

The two instruments are the feelings questionnaire, in which each member of the couple rates on a 6-point scale how he feels about his spouse (or steady) and how he thinks his spouse feels toward him on 36 key aspects of a relationship; and the interpersonal behavior questionnaire, in which each rates on a 5-point scale how frequently he and his spouse engage in 113 potentially bothersome and disruptive behaviors. Of concern here are the love, interference of parents, trust, criticalness, and negative behavior scales.

Romantic and Conjugal Love

It was hypothesized that love becomes more highly correlated with conjugal or friendship factors with the development of the relationship over time. Love was more highly correlated to these friendship components for married than for unmarried couples. Love for unmarried couples was more highly correlated with these conjugal factors at Time 2 than at Time 1. These results are consistent with our hypothesis that love becomes more highly correlated with conjugal or friendship factors with the development of the relationship over time.

Parental Interference and Love

It was hypothesized that parental interference in a love relationship intensifies the couple's feelings of romantic love. This hypothesis is examined both with respect to the love scale and to the derived index of romantic love. Parental interference and the romantic component of love were positively and significantly related at Time 1 for both the unmarried and married samples.

Longitudinal data—The causal interpretation of the results—that the correlation between love and parental interference was due to the intensification of love by parental interference—is supported by the direct association between changes in parental interference and changes in love during the 6–10 month followup period.

Although the data support the hy-

pothesis that parental interference intensifies feelings of romantic love, three competing hypotheses are considered: Parental interference breaks up couples with low levels of love, so that by selective attrition the only couples left with high parental interference are those with high levels of love; the correlation reflects the family background—individual difference correlation; and parental interference is a reaction to the couple's commitment to marry, which is associated with high love and parental interference-love correlations.

Selective couple attrition—If parental interference operated to break up couples with low levels of love, one would expect the degree of such interference reported at Time 1 to be predictive of breakup rates before Time 2. But no indication of predictiveness was attained.

Background factors—A check to see if there were any characteristic backgrounds of those unmarried persons who had present conflict with their parents showed no differences for measures of adolescent happiness, conflict in the family during adolescence, or parents' happiness with each other at that time. Further, there were no differences in the correlations between interference from one's own parents versus from one's partner's parents, to one's own report of love and other factors. It was interference with the relationship, rather than trouble with one's *own* parents which was the central factor.

Reasons for parental interference—The parental interference-love correlation was due to parents' concern with and opposition to those relationships with high commitments to marry. The commitment-to-marry scale consisted of one item for each partner which asked the degree of commitment to marriage. If the primary direction of influence was that commitment to marry precipitated parental interference and thus produced the interference-love correlation, one would expect that commitment as the independent variable would correlate more highly with parental interference than would love or romantic love. This is not the case. These results do not support the contention that parental interference is primarily a reaction to couple commitment. Couple reports suggested that in the majority of cases parental interference was the result of external social factors (racial, religious, socioeconomic, moral), which were in several cases exacerbated by plans to marry. The couples' serious commitments to their relationships made it possible for the parents to see a potential mismatch in their offspring's partner. The most plausible interpretation is that couple commitment may be an additional, but not the primary, factor in the association between parental interference and romantic love.

These results provide strong support for the causal hypothesis that parental opposition leads to romantic love.

The predicted effect of parental interference intensifying romantic love is consistent with the operation of two rather well-supported psychological principles—goal frustration and reactance. But the application of these principles to the complex circumstances of romantic love is perhaps novel enough to justify a distinctive name —the Romeo and Juliet effect.

Of as much interest as the consistency of the Romeo and Juliet effect with existing principles are the seemingly paradoxical effects of parental interference. While such interference increased the feelings of romantic love among couples, it also was associated with decreased trust, increased criticalness, and increased frequency of

negative bothersome behaviors.

Conceptually, the importance of trust can be related to the degree to which one relies on another for important functions or gratifications and the possibilities for violation of that trust. Parental interference has the capacity to undermine the stability and mutual satisfactions of the relationship. The lower levels of trust of these couples can be seen to be due to parental interference making the couples more dependent upon each other for love and emotional support, and yet at the same time less certain that the relationship can survive the stress.

The higher criticalness and greater frequency of negative behaviors of those couples experiencing parental interference is thought to be due to their intense emotional involvement, based on external opposition rather than on solid friendship factors. Persons who are more intensely involved are likely to place higher expectations and demands on the relationship and to react negatively when such expectations are not met. These persons are intensely in love and may be disappointed and critical when their partners are not "knights in shining armor" or "fairy tale princesses" or not, they sometimes fear, even as desirable as some of their other friends.

Finally, this pattern may reflect a displacement of aggression felt toward the parents due to their interference with the relationship. It appears that parental interference does have a detrimental effect on certain aspects of the relationship, as would be predicted by the punishment or frustration-aggression principles.

The association between parental interference and lowered conjugal relationship factors suggests that, if such interference continues without resolution, it is likely to undermine the overall quality of the relationship. This may account in part for the failure to find a positive relation for married couples between parental interference and overall love.

If the finding that parental interference may lead to romantic love can be generalized to cultures other than our own, it can provide an explanation for certain cross-cultural differences in the occurrence of love. Romantic love seems to be more prevalent in our societies with nonneolocal residence (i.e., residence with one or both of the newlyweds' kin groups). Since newlyweds in nonneolocal societies are more likely to be confronted with divisive kinship pressures, it was suggested that one function of romantic love was to protect couples from such pressures. Those nonneolocal cultures that did not emphasize romantic love were found to have other means of integrating the couples' kin, such as child betrothal and endogamy, so that the couples would not be confronted with divisive kin pressures. While the functional hypothesis aims to explain the maintenance of the social practice of love, the occurrence of that practice may be due to the intensification of love by kin interference. Patterns of residence conducive to parental interference may promote romantic love, so that love becomes a visible social practice and is incorporated into these cultures. Finally, parental interference in established relationships may be associated with social factors other than residence, and one could predict that these factors would also be associated with romantic love.

Condensed with permission from the *Journal of Personality and Social Psychology*, 24(1):1–10, 1972. Copyright 1972 by the American Psychological Association, Inc. Reprints of original article from Richard Driscoll, M.A., Department of Phychology, University of Colorado, Boulder, Colo. 80302

Social and Epidemiologic Factors in Psychosomatic Disease

C. David Jenkins

The behavioral sciences—primarily psychology, sociology, and anthropology—can make essential contributions to the study of health and disease in human communities. The ability of a community to function is related to the reactions of individuals to their social environment. Psychosomatic medicine can illuminate much of the interaction of social environment, personal reaction, health and disease, particularly if it is able to move toward the sociopsychosomatic approach. In so doing, this field would need to move from the consulting room and the hospital into the community, and to obtain from the behavioral sciences reliable measures of psychological and social phenomena which can be applied in large-scale community studies.

Three levels of behavioral science contribution come to mind: theories, concepts, and techniques. Psychological and sociological theories designed to explain and predict human behavior are useful frames of reference for study of the interrelations between behavior and health. Behavioral science concepts provide health scientists with an established symbol system which supplements and extends psychiatric theories and thus aids in describing and interpreting human behavior. The third contribution is the methodologies for gathering, measuring, and analyzing information about knowledge, attitudes, feelings, personality structure, overt behavior, social interaction, cultural norms, and other important variables.

I shall discuss four frontiers of psychosomatic research where the behavioral sciences can make important contributions: the etiology of disease, psychological and behavioral concomitants of physiological change, the "sick role," and the course of disease.

The Etiology of Disease

Psychic factors can affect health adversely either through covert physiologic mechanisms or through overt behaviors. Psychosomatic medicine needs to discover the psychodynamics in both situations.

Lung cancer—Epidemiologists studying lung cancer have considered many possible causal variables including heredity and the physical environment, but the strongest risk factor proved to be a behavioral one: cigarette smoking. Both host factors and environmental factors have been found associated with smoking behavior. One study revealed that heavy cigarette smokers differed from nonsmokers in serum lipids, hematocrit, type of occupation, level of income, and amount of schooling. Young people who smoke are more likely to associate with a peer group where smoking is the norm and to have parents who smoke, in contrast to non-smoking adolescents in the same shcools.

Polio—Epidemiologic studies have shown that the individuals most at risk of a paralytic polio attack are those who failed to obtain a natural immunity through very early childhood exposure to the virus and who have failed to obtain an artificial immunity through receiving an effective vaccine. The development and distribution of safe vaccines means that in an environment where sanitation is good and infant mortality low, the epidemiology of susceptibility to polio can be reduced to the epidemiology of nonac-

ceptance of polio vaccine. Such nonacceptance has been studied intensively, and sociological and psychological variables have emerged as potent predictors. Persons who are most caught up in thought life and social life of the community are most likely to accept free preventive health services.

Heart disease—Coronary heart disease (CHD) has both behavioral and biological risk factors, and many of its biological factors are influenced by psychological ones. Most investigators agree that the best-established risk factors are cigarette smoking, elevated serum lipids (such as cholesterol), and elevated blood pressure.

Cigarette smoking is a learned behavior initiated by imitation of role models and maintained through both pharmacologic and psychologic reinforcement. The most effective procedures for discontinuing the habit are behavioral. Experimental and clinical literature documents the influence of psychological factors on serum lipid levels, and it is well established that excitement raises the blood pressure. Three additional risk factors are diet, obesity, and exercise, each of which is imbedded in an individual's sociocultural background and personality characteristics.

An intensively studied psychosocial variable is the coronary-prone behavior pattern—a style of living characterized by competitiveness, striving for achievement, aggressiveness (sometimes suppressed), haste, impatience, restlessness, hyperalertness, explosive speech, tense facial muscles, and persistent feelings of being under the pressure of time and the challenge of responsibility. A broad array of prospective and retrospective studies converges in finding that this style of behavior is correlated with the presence of coronary heart disease (CHD).

Psychological and Behavioral Concomitants of Physiological Changes

Alterations in physiological function commonly accompany changes in the individual's life situation or his interpretation of the situation. Sustained deviations of certain biochemical and physiological parameters have been implicated as risk factors for a number of diseases.

Level of serum cholesterol, a risk factor in coronary heart disease and cerebrovascular accident, has been found to be raised in college students taking crucial examinations and workers under heavy job stress. Serum levels of triglycerides and beta and prebeta lipoprotein fractions seem to rise when the individual is either in a state of excitation or is actively suppressing his impulses. The consensus of numerous studies is that higher lipid levels are found in more active, aggressive, outgoing, stimulated people as well as those who strongly suppress their impulses, show high levels of self-control and propriety, and are self-critical.

Psychosomatic research has demonstrated the role of anxiety and hostility in raising blood pressure levels. Although most experimental work deals with transient alterations in blood pressure level rather than with sustained hypertension, epidemiologic studies have shown that a single casual reading of elevated blood pressure has predictive value concerning CHD risk.

The "Sick Role" and Seeking of Medical Care

Medical sociologists have defined as the "sick role" that set of attitudes toward the self which lead a person to claim the privileges afforded to the "sick" and to initiate corrective actions. We must understand how the sick role is learned and used. Unwarranted use of the sick role places an excess load on the limited medical

care resources. Inappropriate denial of the "sick role," as found in some patients with early cancer and precoronary chest pain, creates delays which make subsequent curative medicine more difficult.

The Course of Disease: Recovery, Chronicity, and Fatal Outcome

Different processes seem to be involved in primary resistance to disease than are involved in recovery after a disease or injury has occurred. Rapid recovery from disease and disability appears to coalesce around two major psychological factors: high ego strength and lack of depression.

Delayed recovery from mononucleosis was found to be associated with low scores on the ego-strength scale of the MMPI and similar scales, and delayed recovery from chronic brucellosis was associated with depression and morale loss as measured on the MMPI scales. In a study of influenza victims, the MMPI scores did not discriminate between those who became ill with the flu and those who remained free of disease, but the depression and morale-loss scores obtained before illness were significantly lower in those who recovered from the flu in less than median time.

The Bender-Gestalt Test was administered to persons with gastric ulcer and the results evaluated by a technique which gives scores indicative of high ego strength and impulse control. Persons with intractable ulcer scored much more poorly on these variables.

Physicians and nurses working on hospital wards containing numbers of terminal cancer patients have commented that the friendly, cooperative patients seemed to die more quickly while the complaining, resistive, cantankerous patients survived longer. Tested empirically, the clinical personnel's observation was indeed true.

Tests measuring personality attributes and flexibility of thought processes have been found to discriminate between survivors and nonsurvivors in an aging population. Rigidity and dogmatism were among the significant variables which enabled an investigator to predict imminent death (within 5 years) in an aging population. Studies of open-heart surgery show that fatal outcome of surgery is far more frequent in patients who are depressed or hopeless before the operation. These examples show the importance of psychiatric concepts in studying recovery from disease, treating situations of delayed recovery and assessing more adequately the risks of adverse response to surgery.

Psychosomatic medicine's contribution to such practical matters of patient care is still in its infancy, and rapid advance is possible. Social and epidemiologic perspective beckon the psychosomatic researcher to use the community as his laboratory in answering important questions about the impact of modern society upon our biologic well-being.

Condensed with permission from *Psychiatric Annals*, 2(8):8–21, 1972. Copyright 1972 by Insight Communications, Inc. The author's address: C. David Jenkins, Ph.D., Professor of Psychiatry and Director, Department of Behavioral Epidemiology, Boston University School of Medicine, Boston, Mass. 02118

A Comparison of Two Group Brainstorming Procedures

Thomas J. Bouchard, Jr.

Research on group-problem-solving procedures suggests that brainstorming is only slightly superior to critical problem solving, at least with respect to fluency of idea production. Furthermore, since individual brainstorming has been shown consistently to be superior to group brainstorming, it has been advocated over group procedures. However, I recently demonstrated that a structured brainstorming procedure will yield group performances that are comparable to individual or nominal group performances. Structure in that experiment consisted of requiring subjects to follow the standard brainstorming procedure, but in a sequence rather than in an unconstrained fashion. The result was a more equalitarian interaction of group members and more output.

The study suggested that group procedures that force greater involvement of the participants in a systematic way might be even more productive. A group-problem-solving procedure that attempts to do this is the synectics procedure. One tactic of synectics groups is "psychological identification" with an object or concept central to the problem being worked on. This tactic is called "personal analogy." A well-known example is Archimedes. His problem was to measure the volume of a rather complicated crown in order to check its specific gravity against that of gold. Archimedes knew that the water level in his tub would rise when he got in, but only by recognizing an equivalence between himself and the crown was he able to generalize the relationship and generate a solution.

The purpose of this study is to assess the effectiveness of the mechanism—personal analogy—when it is used as an adjunct to brainstorming. The synectics procedure might lead to a concretizing mode of thought which in turn may restrict the range of ideas available to the subjects. The brainstorming procedure, on the other hand, is more abstract and may not impose such a restriction.

This study compares the effectiveness of brainstorming and synectics across nine problems for groups of different compositions.

The subjects in the brainstorming groups were male students from an introductory psychology course, recruited by offering them points for experimental participation (required of all introductory students), and $2.50 per hour for up to 2 hours over the time necessary to earn their points. The subjects who performed in the synectics groups were chosen from the same subject pool, but much later during the course.

There were three four-man groups in each of the synectics cells and eight four-man groups in the brainstorming cells, except in session three where one brainstorming, high-interpersonal-effectiveness group was lost due to the failure of a tape recorder.

The two levels of the group composition factor were high and low on the sum of the first five scales of the California Psychological Inventory. They define the first factor of the CPI called Interpersonal Effectiveness. In a previous analysis, this factor was found to be highly predictive of performance in brainstorming groups.

All groups worked on three sets of problems during three different sessions. Each subject had a written copy of the rules of brainstorming to exam-

ine while he listened to them on a tape recorder.

Session 1 instructions—The subjects were told that the experimenter was interested in how much a group's performance improved over time as the subjects got to know each other and practiced with the procedure. They were told their performance would be tape-recorded and compared to groups who did not practice.

The brainstorming instructions proscribed criticism and emphasized freewheeling, quantity, and the combination and improvement of ideas. A procedural rule required ideas to be contributed by participants in sequence. Each subject had to say "Pass" if he had nothing to say. Each was also encouraged not to get bogged down in long discussions about trivial points. The subject had a copy of the instructions in front of him. The instructions were repeated at each training session.

The following paragraph appeared in all synectics group instructions, but did not appear in the brainstorming group instructions.

Identification with the task—Each of you in turn gets to play a central part of the problem while the group works on it. For example, if the problem were "Think up as many brand names as you can for a new spray deodorant" one of you would get up on the table, sit down, close your eyes, and play the can of deodorant. The amount of time each of you will play the role or part of the problem will vary from task to task and will be indicated on your instruction sheets. The procedure here is simple. Ideas should be contributed in sequence. Note that each of your instruction sheets is numbered. Subject number one should begin, followed by subject number two, etc. This includes the person who is playing the part of the problem object. Don't let this task throw you. An easy way to conceptualize it is to imagine that you are doing an animated cartoon or commercial for television.

Session 2 and 3 instructions—For session two, the instructions were repeated in full. For session three, the subjects were told that they were working on the final set of problems, and they were asked to do their best while following the instructions on the sheet in front of them.

The subjects worked on three problems during each of the three sessions. Each subject had a copy of the problem. When the time allotted for a problem was up, the experimenter entered the room, collected the problem that the subjects had finished, and handed them a new problem sheet. He simply said, "Here is the next problem for you to work on." The first problem of each set was worked on for 5 minutes, the second for 10 minutes, and the third for 20 minutes. Both the brainstorming and synectics versions of the first problem are given below. The remaining problems were structured in the same way.

Brand names for a cigar—There are a number of cigars on the table. Each of you please take one. Don't smoke it because there is no ventilation in this room.

One of the factors involved in marketing a product is the brand name. The purpose behind a brand name is to sell the product. Assume a new cigar is to be put on the market. Create as many brand names for this cigar as you can. You will have 5 minutes to work on this task. We will tell you when to stop.

For the synectics condition, the following additional instructions were given. Subject number one should get up, lie on his back on the table, and play the part of the cigar for 1 min-

ute. As the instructions indicated, you should contribute ideas in sequence beginning with subject number one. At the end of a minute, we will ring a buzzer and subject number two should take the part of the cigar, then subject number three, and then four.

At the end of the four 1-minute sessions, you will have 1 additional minute to suggest more names. We will tell you when to stop.

The remaining problems were brick uses (Think of as many uses as you can for old bricks), people problem (consequences of all children doubling in height over the next 20 years), brand names for a bra, newspaper uses, tourist problem (How do you get more tourists to come to the United States?), brand names for an automobile, uses for old coat hangers, and sudden blindness problem (consequences if suddenly everyone went blind).

The analyzed dependent variable was number of different ideas generated. Previous work has shown that total number of ideas is the most sensitive indicator of treatment effects and correlates highly with quality scores. The magnitude of effects is generally attenuated somewhat when quality scores are used.

All overlapping ideas within a group were deleted from transcribed tapes. The total number of ideas remaining constituted the criterion total number of ideas (fluency score) applied to all problems.

The only significant effects in session one were due to procedure (synectics vs. brainstorming). There were no significant effects due to selection, nor were there any interactions. The synectics groups performed significantly better than the brainstorming groups on all three problems individually and on all three problems combined.

In session two, there were no significant main effects or interactions, although the means show that the scores for the synectics groups are higher on all problems than the scores for the brainstorming groups.

In session three, the only significant effect was for procedure on the blindness problem, where the synectics groups outperformed the brainstorming groups although, as before, the trends are for higher "synectic group means" on all problems.

There is no way to determine if the increased productivity of the synectics groups is due to the process of "personal identification" as a cognitive strategy or whether the relative uniqueness of the procedure served as a generalized motivator or means of creating greater involvement. Groups seldom engage in as much physical activity as that required by the synectics procedure, and this may have involved them in the task to a greater degree. Nevertheless, the time it took the subjects in the synectics groups to change roles, particularly on the briefer tasks, severely cut into the total amount of problem-solving time; this may make their relative superiority over the brainstorming groups even more impressive.

The results suggest that the strategy of personal analogy may be a useful problem-solving tool, and it, as well as other synectic procedures, deserves more investigation.

Condensed with permission from the *Journal of Applied Psychology*, 56(5):418–421, 1972. Copyright 1972 by the American Psychological Association, Inc. Reprints of original article from Thomas J. Bouchard, Jr., Ph.D., Elliott Hall, Department of Psychology, University of Minnesota, Minneapolis, Minn. 55455

Effect of Sensory Overload on Psychological State

Louis A. Gottschalk, John L. Haer, and Daniel E. Bates

The aim of this study was to determine whether temporary pathological psychological states might be produced by excessive auditory and visual stimulation. Criteria for assessing such changes were changes in the content of speech measured by the Gottschalk-Gleser social alienation-personal disorganization scale and the cognitive-intellectual impairment scale. We designated the procedure in which a subject receives excessive atypical sensory stimulation as "sensory overload."

Experimental Method

Subjects—Ten male and ten female Caucasians (mean age, 27.6 years) voluntarily served as subjects. None exhibited evidence of psychiatric impairment, and all exhibited curiosity about an experience "involving light and sound."

Apparatus—The Sensory Overload Apparatus was a geodesic dome upon the inside of which a movie was projected. The dome was 6 feet high and 11 feet in diameter. The floor upon which the subject reclined was carpeted and access to the interior of the dome was via a small door which blended with the inside walls.

A standard visual presentation was projected over about two-thirds of the ceiling and walls. The subjects experienced being surrounded by a total environment of color and sound. The 43-minute color film was intended to simulate visual and auditory aspects of a quasi-hallucinatory experience. It included changing abstract images, a diffuse red light, and sequences relating to a variety of themes: birth, death, violence, eroticism, views of outer space, nature, surgical procedures, and so forth. The themes selected were assumed to tap conscious and unconscious levels of significance for all subjects. The segments were spliced together so that the "flow" of the film defied customary expectations. Most subjects felt caught up in an experience that was intense, colorful, and replete with arousing images and sequences.

A tape recorder supplied the standard auditory presentation through inconspicuous speakers in the dome space wall. The intensity of sound was judged extremely loud but bearable. Sounds were taken from recordings of sound effects and electronic music, and were juxtaposed so that sometimes the music complemented the visual presentation and sometimes was antagonistic to it. All subjects reported that the sound seemed to converge on them from all directions.

Procedures—The subjects were individually interviewed and tested before and after exposure to the overload. Prior to the experimental procedures, personal background data were obtained, including motives for participating in the experiment. Then subjects were given the Rod and Frame test, a test of space perception, and a test of ability to estimate the passage of time. A 5-minute tape-recorded verbal sample was next obtained by asking each subject to speak about any interesting or dramatic personal life-experiences. Finally, subjects filled out the Multiple Affective Adjective Checklist, a device which provides measures of anxiety, depression, and hostility.

Subjects were then placed in the Sensory Overload Apparatus for about 45 minutes. They were requested to lie on their backs under the dome and were assured that the experimenter

would remain in the room outside. No additional instructions were given. After the 45 minutes they were taken to an adjoining room and asked to give another 5-minute verbal sample. Then they filled out the Multiple Affective Adjective Checklist and were again given the Rod and Frame, space perception, and time-estimation tests. After the testing was concluded, subjects were asked to enlarge on portions of their verbal reports of their experiences.

Typescripts of the 5-minute speech samples were scored blindly for social alienation-personal disorganization and cognitive and intellectual impairment by content analysis technicians uninformed as to the details of this study.

Studies indicate that the social alienation-personal disorganization content analysis scale measures a psychological dimension at one extreme congruent with the schizophrenic syndrome and at the other indicating degrees of withdrawal, alienation, or lapses in coherent thinking that might be labeled "schizoid" trends. The cognitive-intellectual impairment scale measures generalized brain-function impairment that is different from the disorganization of thinking in the schizophrenic syndrome, and it has proved sensitive in detecting significant temporary worsening in the intellectual functioning of patients receiving body-irradiation.

Results

Comparison of the mean of social alienation-personal disorganization scores at preexposure with that at postexposure in the Sensory Overload Apparatus showed a significant difference. Comparison of the mean of cognitive and intellectual impairment scores for preexposure to the mean score at postexposure also showed a significant change.

The correlation of preexposure field dependence-independence scores and change scores for social alienation-personal disorganization was +0.36, and the correlation of field dependence-independence scores with cognitive-intellectual impairment change scores was $r = +0.48$. The relationships between subjects' Rod and Frame test scores and their social alienation-personal disorganization scores, preexposure and postexposure, were $r = -0.33$ and $r = +0.26$, respectively. There was no relationship between the ranking of subjects on social alienation-personal disorganization scores before and after the sensory overload experience. Also, there was no significant correlation between subjects' ranking on preexposure cognitive and intellectual impairment scores and their postexposure ranking.

A detailed examination was carried out of the changes in content categories occurring in the 5-minute speech samples in response to the sensory overload experience. The major changes accounting for increased scores in the dimension of social alienation-personal disorganization were found to be in the following subcategories: fewer references to others being friendly toward the self; fewer references to others being friendly toward others; more references to disorientation; more references to others avoiding the self. References to psychological malfunctioning and questions directed to the interviewer occurred less frequently after sensory exposure.

The major changes accounting for increased scores in the dimension of cognitive-intellectual impairment were shown to be in the following categories: more incomplete sentences, clauses, and phrases; blocking; fewer references to others being friendly toward self; fewer references to others being friendly toward others; fewer

references to psychological malfunctioning; more references to disorientation. References to malfunctioning of indeterminate origin tended to occur somewhat more prominently after sensory exposure; also, questions directed to the investigator, slightly indicative of cognitive impairment, again occurred less frequently but with greater magnitude after sensory overload.

The results appear to show that several content categories of the dimensions of social alientation-personal disorganization and cognitive-impairment undergo modifications in the same directions in reaction to the sensory overload experience. On the other hand, in response to the overload stimulation, more references to others avoiding the self help produce increased scores in the social alienation-personal disorganization scale. More incomplete sentences and fewer references to psychological malfunctioning contribute to greater scores in the cognitive-intellectual impairment scale.

The results indicate that experience in the Sensory Overload Apparatus produces a measurable increase in the subjects' social alienation-personal disorganization scores (a measure congruent with the relative severity of the schizophrenia) and cognitive-intellectual impairment scores (brain function disorder). Those who had higher social alienation-personal disorganization scores before being exposed to the excessive sensory stimulation were not necessarily those most affected by the experience. Likewise, the brain function impairment change over subjects was not predictable related to preexposure scores.

Rod and Frame test scores indicate that visual and auditory sensory overload is likely to impair significantly the cognitive function of field-dependent individuals to a greater extent than field-independent subjects.

The detailed examination of the specific changes in speech categories of the two psychological dimensions in reaction to the sensory experience raises as many questions as it answers. It appears to be evidence that both impairment of brain function and sociopsychological function are induced by sensory overload. Our criteria, however, of these functions contain some common denominators which, though weighted differently in order to detect these presumably different mental conditions, show changes in similar directions. We must argue, however, that any fault in our measurements is not in the discriminatory capacity of our content analysis scales, but in the complexity of nature which permits sociopsychological dysfunction to be associated with disturbances of brain function and vice versa. We continue to be concerned, however, with maximizing the specificity of the two content analysis measures used in this study, and the data obtained here will be considered in making possible future changes in the weights assigned to content categories.

Condensed with permission from the *Archives of General Psychiatry*, 27(4):451–457, 1972. Copyright 1972 by the American Medical Association. Reprints of original article from Louis A. Gottschalk, M.D., Department of Psychiatry and Human Behavior, Orange County Medical Center, 101 S. Manchester Ave., Orange, Calif. 92668

The Rights of the Subject in Social Research: An Analysis in Terms of Relative Power and Legitimacy

Herbert C. Kelman

Along with many social scientists, I share the conviction that both the *process* and the *products* of social research—both the attempt to ask systematic and analytic questions about human behavior and social institutions, and the answers provided by these attempts—are potentially liberating forces in our society. They do, however, raise ethical problems which can be conceptualized in terms of the power relationship between the subjects of social research, on the one hand, and the social scientist as well as the sponsor and user of social research, on the other hand.

The Power Deficiency of the Subject in Social Research

The subject in social research experiences a power deficiency which can be traced to two sources: his position of relative disadvantage within the social system and his position of relative disadvantage within the research situation proper.

The subject's position within the social system—A great deal of social research is carried out on groups that are in some sense disadvantaged within the society: children, old people, ethnic minorities, welfare recipients, mental patients, criminals, addicts, and military recruits. These groups are dependent and powerless by virtue of their age, their physical and mental condition, their economic and political position, their educational level, their social deviance, or their captive status within various institutions.

Various reasons can be cited for the tendency to focus so much social research on disadvantaged groups: Established segments of society—including middle-class social scientists and the agencies that sponsor social research—are concerned with the control of social deviance and the management of social dependency. Many social scientists and some of the sponsoring agencies are rooted in a tradition of "social problems" research and are strongly committed to social welfare and social reform. In the recruitment of subjects for social research, members of disadvantaged groups are more readily available, and investigators can induce them more easily to participate in research that members of more powerful groups would find objectionable.

The subject's power deficiency often is based also on his position within the particular organization in which the research is conducted. Typically, research in organizational contexts is sponsored by those in high-status positions, while the data are obtained from those in low-status positions. For example, social research in industry usually is sponsored by top management, but the data are provided by blue-collar workers. Insofar as the research is related to the way in which the organization is run, it has direct consequences for members in lower status positions; yet the research usually is focused on those issues that higher echelons consider problematic.

The uneven distribution of resources also plays a major role in the selection of societies and communities as subjects for social research. Within the international system or the national system, the more powerful communities are generally the only ones who have the resources to carry out

social research and who are thus in a position to define what is problematic.

In sum, the subjects in social research tend to be drawn disproportionately from disadvantaged groups whose power deficiency increases their vulnerability—both to their recruitment as subjects and to their treatment in the research situation. Furthermore, the groups typically have no voice in determining the questions to which the research is to be addressed, nor do they have the resources to make use of the research findings.

The subject's position within the research situation—Regardless of his position in society, the subject's position within the research situation itself generally places him at a disadvantage. The investigator usually defines and takes charge of the situation on his own terms and in line with his own values and norms, and the subject has only limited opportunity to question the procedures. The power deficiency of the subject within the research situation derives from the structure of that situation itself; the situation-linked disadvantage of the subject, however, is especially pronounced if his societal or organizational status is relatively low. Subjects who occupy low-status or dependent positions in the society or organization are less likely to see themselves as having the option to refuse participation in the research, or to withdraw once they have entered the situation. Compared to higher status subjects, they are more reluctant to question or challenge the investigator, and—even if they were inclined to raise questions—they usually have less of the knowledge required to raise them effectively.

Two interrelated factors limit the subject's exercise of power in the research situation: The subject feels that he lacks the capacity to question research procedures because he does not have the necessary informational base for doing so and that he does not have the right to question these procedures because he has submitted himself to the investigator's legitimate authority. The investigator's perceived legitimacy is enhanced by his expertise and by various indications that his role is recognized and supported—the sponsorship of an official agency or prestigious institution, the institutional aura of legitimacy, the sign on the door, the diploma on the wall, or the expensive equipment. Finally, the acceptance of science as a general value within the society makes the subject feel obliged to cooperate with and reluctant to question procedures that are presented to him in the name of science.

Counteracting the subject's power deficiency—The most obvious way of counteracting the subject's power deficiency is to develop mechanisms for increasing his power over the research—the questions for research, the selection of participants, the procedures to be employed, and the uses of research findings. The subject's power could be enhanced by extending the range of participation in social research within the society and by exploring models of research that would allow the subject more equal participation in the whole research process.

It is both possible and desirable to consider such revisions in the structure and methodology of social research. Even at best, however, I do not think it possible to eliminate entirely all discrepancies in power between subject and investigator.

As far as discrepancies based on position within the society are concerned, there are some groups that often provide subjects but that cannot, by their very nature, provide investigators. Children are the best example of such a group; other examples might

be mental patients, criminals, or illiterates. When members of these groups serve as subjects, there is no real possibility of role reversal. The only alternative would be to refrain from using these groups as research subjects, but such a solution would rule out research that might be of great value.

There are other disadvantaged groups—for example, blacks and other ethnic minorities—that can be brought into fuller participation in the research process. Even here, however, the power discrepancies between the investigator and subject are removed only partially, for a certain degree of discrepancy in power is inherent in the very social role of the researcher.

As far as discrepancies based on position within the research situation itself are concerned, it is even more obvious that they cannot be removed totally. Although it is possible to strip the research situation of some of its unnecessary mystique and to provide opportunities for genuine participation on the part of the subjects, it is generally impossible to extend to the subject equal control over the situation.

If we assume then that the subject's power over the research cannot be increased in all cases to the level of equality with the investigator, we must find ways of assuring that investigators will use their power in legitimate rather than arbitrary fashion. Insofar as they use their power legitimately, the subject's relative power would in effect be enhanced indirectly.

In social research the subject's power deficiency presents the danger that the researcher and the research sponsor may use their power over him in illegitimate fashion. Many ethical concerns that social research has generated can be conceptualized in terms of the potentially illegitimate exercise of this power. To deal with these concerns effectively, therefore, we must develop mechanisms to insure that the researcher's power will be used in legitimate fashion and to provide the subject with countervailing power that would enable him to protect his own interests in his relationship to the research.

Ethical Problems Relating to the Processes of Social Research

In speaking of the processes of social research, I refer to the experiences of those who participate in the research as subjects. How are they recruited? How are they treated? What are the consequences of their participation for them? Questions about the long-run consequences of participation, particularly when these involve consequences for a group or community, overlap with questions relating to the products of social research. My focus at present, however, is on the consequences of a group's having participated in the research, having revealed certain information, and having in some sense increased their own vulnerability.

Some illustrative problems—Some of the ethical concerns that have been voiced about social research have included the point that it represents an invasion of the subject's privacy, an imposition on him, or an exploitation of him; that it deceives the subject about the true nature of the research; or that participation may be harmful to the subject because it disturbs his psychological well-being or because the data may be used somehow to his disadvantage. Let us examine some of these concerns as they apply to research carried out in different settings.

Deception has been used extensively in the conduct of laboratory experiments in social psychology, because many of the phenomena that the psychologist hopes to observe would be

destroyed if he revealed the true purpose of the experiment to his subjects. Thus, the experimental social psychologist is confronted with a conflict of values. On the one hand, the use of deception is ethically objectionable. On the other hand, however, certain lines of research cannot be pursued without the use of some deception. Before deciding to use deception, an experimenter ought to seriously consider the importance of the study, the availability of alternative methods, the degree of deception involved, and the probability of harmful consequences. Only if a study is very important and no alternative methods are available can anything more than the mildest form of deception be justified. Even when an experiment does not entail potential harm or discomfort for the subject, deception violates the respect to which all fellow humans are entitled and the trust that is basic to all interpersonal relationships. By undermining the basis of trust in the relationship between investigator and subject, deception makes it increasingly difficult for social scientists to carry out their work in the future.

Research based on participant observation inevitably raises some concerns about the invasion of subjects' privacy. When the observation is disguised, these concerns become particularly serious and parallel those raised by deception in the laboratory. Even if the participant observer acknowledges his research interest and is accepted in the group on that basis, his role creates many ambiguities, in that the social scientist is seen as neither a full-fledged member nor a complete outsider. The success of a participant observer can be measured by the extent to which he stays in the background and is ignored by the members of the group; this state of affairs is not objectionable from an ethical point of view. Ethical problems arise, however, when the observer deliberately takes advantage of the ambiguity of his role to seduce group members to give him information that they might not have revealed otherwise. The temptation to take advantage of the ambiguities inherent in his role places a considerable ethical burden on the participant observer.

Research in which the investigator makes systematic observations of his subjects' behavior without their awareness that these observations are taking place presents problems similar to those of unacknowledged participant observation. The ethical issues are less severe when the observations focus on naturally occurring events that are essentially public—for example, on behavior in streets, in trains, in restaurants, or in department stores. Greater ambiguities arise when the social scientist has gained access to observations that are not generally public, or when he has introduced experimental manipulations into the natural situation and thus has deprived the subject of the chance to decide whether or not to participate in the experiment.

Research based on the use of unobtrusive measures and disguised experimental treatments may yield knowledge of great social significance, yet it also presents difficult ethical problems. As in other lines of research, the severity of the ethical problems raised by the research must be weighed against its importance and the unavailability of alternative procedures.

Survey research, generally carried out in the respondent's home, is less beset by problems of deception and disguise than some of the other approaches. There are certain other ethical problems, however, that survey research brings into focus. The mere fact that an interviewer arrives at

someone's doorstep to ask questions may represent an imposition and an invasion of privacy, and the respondent may be induced to reveal information that he might prefer not to reveal. As an invasion of privacy, the survey is particularly troublesome if the respondent feels he has no choice about participation in the interview. From a broader social point of view, there is also the question of the extent to which the proliferation of survey research may add to the already considerable erosion of privacy in our society.

When interviews, questionnaires, or psychological tests are administered to a delimited population—such as workers in an industry, students in a school, or welfare recipients in a community—then the problem of anonymity takes on special significance. If the data collected are to be used not only for purposes of research but also for some subsequent decisions about individual respondents, then the investigator must make it clear at the outset that the usual guarantees of anonymity do not hold. Even when the anonymity of the individual respondent is assured, the research may have potentially damaging consequences for any group whose data are reported separately. Under such circumstances, it is incumbent upon the investigator to conduct and communicate his research in a way that will minimize the vulnerability of the group he studies, and to afford his potential subjects a genuine choice about their participation in the research.

When research in the black or other minority communities is carried out by white investigators, it also raises special questions about the invasion of the group's privacy and exploitation of its resources by outsiders. These concerns, as well as the concern that information revealed in the course of the research may be damaging to the interests of the community, are very similar to those that have arisen in the context of research in foreign areas. In foreign area research, concern with exploitation arises particularly when investigators from industrialized nations come into less developed countries to collect data for their own research, then export these data to advance their own careers abroad without making sure that sufficient benefits accrue to the society providing the data.

Research procedures that involve potential ethical violations correspond to illegitimate uses of the investigator's power. The legitimate use of power presupposes adherence to shared norms that govern the relationship between the two parties. The central norm governing the relationship of the investigator and subject is that of voluntary informed consent, and if investigators were to adhere to the norm of consent and related principles, then most of the ethical problems would be avoided or corrected for readily. The question is how such adherence can be facilitated.

Some Corrective Approaches

Most of the problems discussed could be resolved or at least minimized with strict adherence to the norms of voluntary informed consent. Commitment to the principle of voluntary informed consent, however, cannot by itself resolve the major ethical issues, since a great deal depends on the degree to which and the manner in which the principle is implemented. Total adherence to the principle is impossible if any research is to take place. Consequently, some decision has to be made about what constitutes, under varying circumstances, consent that is sufficiently voluntary and sufficiently informed. Furthermore, imple-

mentation usually involves translation of the principle into a specific procedure, such as the signing of a consent form. Any such procedure easily can become routinized and ritualized, thus pushing the ethical issue just one step further back.

We clearly need more than a set of formal procedures to insure genuine consent. The atmosphere and structure of the investigator-subject interaction must be such that the subject has both the opportunity and the capacity to make meaningful choices. It is in this context that the power relationship between investigator and subject becomes particularly germane, for the subject's relative power deficiency makes it difficult and sometimes impossible to achieve a genuinely voluntary informed consent. To create the structural conditions for more truly voluntary informed consent, we need collective efforts and institutional mechanisms that will help to overcome the subject's power deficiency.

Patterns of research—A major barrier to correcting ethically questionable procedures in social research is the fact that some of these procedures have become institutionalized. For example, the use of deception has been a standard feature of social-psychological experiments for some time. Under these circumstances, even an investigator who has become sensitive to the ethical implications of the procedures finds it difficult to abandon them entirely. Change does take place within a community of scientists, however, if new procedures are developed and prove to be at least as effective in producing results as the old procedures.

One major corrective approach, then, to the ethical ambiguities of social research is the active development and the institutionalization of alternative research models that call for an ethically sounder relationship between investigator and subject. The models I have in mind can be characterized as participatory research, in that they are designed to involve the subject as an active participant in a joint effort with the investigator. The investigator would usually play a more central role in designing the research and in defining the tasks to be performed by the subject, but the subject would be interested personally in the process or outcome of the research and involved actively in making it a success. Such research models are by no means new; what I am proposing is that they be extended to wider areas of social research and that they be more fully developed and institutionalized. From an ethical or from a methodological point of view, participatory research is not entirely free of ambiguities. Nevertheless, the further development and institutionalization of participatory models of social research would provide some alternatives for those social scientists who are concerned about the unequal relationship between investigator and subject.

Patterns of training—Concern with the rights of the subject will become part of the social researcher's operational code if he is sensitized to the issues in the course of his training and if this sensitivity is reinforced throughout his professional career. The institutionalization of ethical review procedures helps to increase such sensitivity. The development of ethical codes is also useful, not simply from the point of view of setting and enforcing norms, but from the point of view of providing needed educational materials.

Mechanisms of protection—There is a need for further development of institutionalized mechanisms designed to protect the subject's interests. One such mechanism is the establishment of committees to review research pro-

posals from the point of view of their implications for the rights of the subject. Another is provided through professional codes of ethics that serve to protect the rights of subjects by defining the obligations of investigators and setting limits on what they may do in their relationship to their subjects.

Mechanisms of accountability—There have to be mechanisms for holding the investigator accountable when he oversteps the limits of his authority in dealings with his subjects. The legal system provides such mechanisms in extreme cases. Many of the violations of subjects' rights, however, do not fall clearly within the terms of existing laws; also, the recourse to legal procedures is so cumbersome and expensive that subjects generally would be reluctant to use it. Another mechanism of accountability is provided by the ethics committees of professional associations which can act on a complaint submitted by a subject who feels that a member of the association has violated the association's own ethical code.

The mechanism of the ethics committee raises one serious question: Does an investigator's accountability to a group of professional colleagues provide enough countervailing power to the subject who feels that his rights have been violated? Is there perhaps some need for external controls? One possibility would be to broaden the perspective of the professional ethics committees by including on them some representatives of outside points of view. Another mechanism would be the appointment of an ombudsman, who would receive complaints from subjects and represent their interests in dealings with individual investigators, research institutions, or professional associations.

Ethical Problems Relating to the Products of Social Research

If knowledge is power, then the knowledge produced by social research is, to a large extent, power to control and manipulate human behavior. The production of such knowledge creates difficult ethical dilemmas for the social scientist, particularly when he considers who is likely to use the power to manipulate, over whom, and to what ends.

It can be said that those who produce social research are in a position to gain some relative advantage from it. They have the opportunity to define the research problem and to make it relevant to their particular interests; they also have the capacity and the resources to make use of the research findings. On the other hand, those who supply the data may very well be at a disadvantage, for information they make available about themselves might be used to control their behavior. Since the roles of researchers and subjects are not distributed evenly within our society, there exists the possibility that social research may serve to strengthen the established segments of the society at the expense of the disadvantaged. There is nothing inherent in social science that works to the disadvantage of the powerless. Nevertheless, as long as the power relationship between the investigator and the subject remains imbalanced, there is a real possibility that social research may further increase the disadvantage of those who are already disadvantaged.

Some illustrative problems—Perhaps the clearest example of the use of social research by the powerful for the direct manipulation of the powerless is provided by some of the counterinsurgency activities carried on by the U. S. military and other agencies in developing countries. Examples from coun-

terinsurgency illustrate the possibility of social research conducted so that its products are directly applicable to the control and manipulation of disadvantaged populations, either because the explicit purpose of the research is to provide such information or because the sponsorship of the research makes such application almost inevitable.

Other kinds of research result in products that could lend themselves to such purposes. Research on deviant behavior often is carried out from the perspective of control or prevention of social deviance, and the data produced by such research could be used directly for manipulative purposes. This can be seen most clearly in connection with political deviants, such as college protesters or ghetto rioters. The control and prevention of riots and destructive forms of social deviance are legitimate social goals, but preventing the manifestations of violent protest rather than its causes can only increase the disadvantage of the powerless by blocking their efforts to change the conditions of their lives. Also, by focusing on the carriers of deviant behavior, such research may reinforce the tendency to explain the behavior more often in terms of the pathology of the deviant individuals, families, and communities, than in terms of such properties of the larger social system as the distribution of power, resources, and opportunities.

The last set of problems suggests that any study in which the psychological or social characteristics of a minority or disadvantaged group are assessed may have damaging consequences for the groups studied. The possibility that biases may operate in social research that yields comparisons between minority groups and the majority population, and that these comparisons will be used to the disadvantage of the minorities, is very real. How probable are such negative consequences? What is the probability that findings may be used to the advantage of the group under study? What steps have been taken to counteract the possibility of biased measures and the misinterpretation and misuse of the research findings? These are the kinds of questions that a social scientist must ask himself in each case before deciding to proceed with—or to abandon—a piece of research in a disadvantaged community.

Some argue that the problems I have been discussing are inherent in social research. In the most extreme view, the practitioners of social research are tools of the establishment, and the research is designed to maintain the power and the advantage of the establishment at the expense of the powerless and disadvantaged populations. But wholesale indictment of social research is based on too undifferentiated a view of the establishment, of social scientists, and of the relationship between the two. Agencies that sponsor research are not monolithic service stations of the status quo. A realistic view of our social system must recognize that creative and unconventional ideas do, at least on occasion, emerge from the interstices of the establishment. Social researchers themselves have not been integrated that well in the society's power structure, and they have a tradition of social criticism, of concern with social change, of identification with the underdog, of pushing the establishment and exposing its hypocrisies. Any analysis that ignores this historical tradition cannot give a valid account of the actual and potential role of social research in the promotion of social change. Social science, by its nature, is designed to bring independent analytic perspectives to bear on questions of social policy and to provide system-

atic bases for assessing the consequences of existing arrangements and deriving alternative policy approaches. Social research, therefore, is an essential source of alternative perspectives and a potentially valuable tool in any effort to promote social change.

Nevertheless, I feel there is a real basis for the fear that some products of social research may be disadvantageous for powerless groups, largely because of normal processes that operate in the production and utilization of the research. The probability that social research will work to the disadvantage of the powerless may well increase as the potential usefulness of social research becomes more apparent to those in power. We must, then, develop more effective mechanisms of correcting for the current power imbalance.

Some Corrective Approaches

There are occasions when a piece of social research may damage so clearly the interests of the groups studied and violate their rights that it ought to be stopped. The most important corrective approaches, however, are not those designed to stop a line of research, but those designed to balance it —to make sure that all segments of the population have an opportunity to help formulate the problems, and to safeguard their interests in the interpretation and utilization of the results. At the level of the individual project, this means institutionalizing ways of involving representatives of the group under study both in the conduct of the research and in the utilization of the findings. At the level of research policy and the organization of research within the society, it means institutionalizing ways of diversifying the community of producers and users of social research.

Mechanisms of accountability — Counterinsurgency research and its possible extensions to the domestic scene may pose serious ethical problems, because the investigator misrepresents himself, because he turns over confidential information to counterinsurgency agencies, or because he exposes the group he studies to possible harm or manipulation without informing them of these risks. These problems, though continuous with those involved in the one-to-one relationship of investigator and subject, are more complicated because they are intertwined closely with the sponsorship and political purposes of the research, and because they usually involve risk to a group rather than to an individual.

The imposition of controls and sanctions endangers freedom of research by political constraints, since the line between ethical and political objections to a piece of research is often very hard to draw. Nevertheless, the line must be drawn. The challenge is to develop criteria and procedures that will make it possible to delegitimize research activities that are based on the systematic violation of the rights of subjects without legitimizing the imposition of political controls on research.

Patterns of research sponsorship—A necessary condition for achieving greater balance in the products of social research is to retain and enhance the ability of social science to bring independent and diverse perspectives to bear on the study of social institutions and societal processes. The sponsorship of social research must be diversified as much as possible; it should not be entirely in the hands of either governmental or private agencies and, within the governmental framework, no area of research should be monopolized by a single agency or set of agencies. Simi-

larly, there is a need for diversity in the recipients of research funds, and care must be taken to preserve the autonomy of the organizations in which social research is carried out.

Patterns of research participation—Perhaps the most important way of counteracting current imbalances is to extend the range of participants in the conduct of social research. At the level of the individual research project, this goal can be accomplished partly by the development of participatory research patterns. Even when the opportunities for active participation of the subjects are limited, it is often possible to extend the range of investigators who participate in the research.

At the level of research policy and the organization of research, the need is for the *democratization of the research community*. The capacities and opportunities to carry out social research must be made available to all segments of the population, and, by the same token, all segments should participate equally in the role of subject. By bringing a variety of perspectives to bear on research problems, democratization would not only reduce the likelihood that the products of the research would give advantages to some groups at the expense of others, but it would also increase the overall validity of these products.

Patterns of research utilization—It is essential to extend also the range of those who are able to utilize social research findings. At the level of the individual research project, we must develop and institutionalize mechanisms of providing subjects with access to the data they contributed. Findings that might be useful or harmful to the subjects should be communicated to them in language they can understand.

At the level of research policy and the organization of research, there is a need for wider distribution among the population of the skills and resources needed to utilize the data of social research. Organizations representing the interests of the disadvantaged segments of the population must acquire the capabilities for using research findings in the development of their own programs and in their inputs to the debates around local and national policies.

In the final analysis, the democratization of the community of research producers and research users must be seen as part of the process of redistributing power within our society at large. Social scientists, however, can contribute to this larger process by correcting the imbalances within their own spheres.

Condensed with permission from the *American Psychologist*, 27(11):989–1016, 1972.
Copyright 1972 by the American Psychological Association, Inc.
Reprints of original article from Dr. Herbert C. Kelman, Battelle Seattle Research Center, 4000 N.E. 41st Street, Seattle, Wash. 98105

The Dilemma of Genetic Engineering

James J. Nagle

Throughout history, scientific and technological advancements have presented a dilemma to mankind. The problem is that advances in knowledge do not automatically define the criteria for their use. As a result, we find that nearly all scientific knowledge has the potential of being "good" or "bad," depending upon man's application of it.

The science of genetics has now reached a stage where it presents mankind with a wealth of sophisticated knowledge upon which decisions about the use and objectives must be made. The state of genetic knowledge has placed man on the threshold of consciously controlling and engineering his future in terms of the very composition of the human population.

A dilemma develops from the complex moral and ethical problems that arise through the application of our genetic knowledge to the human population. Society must confront the problems created by this genetic technology, for not only will our generation be affected by our decisions; the future generations of our species are involved. Processes that influence our genetic future have begun; several have been under way for some time. We are already producing genetic changes in our species. The questions now are how conscious of the changes are we willing to become and how wisely can we consciously direct the processes involved?

Genetic engineering may be applied with one or both of two basic objectives: improvement for the benefit of the individual, called euphenics, or improvement for the benefit of the population as a whole, called eugenics. These objectives are not mutually exclusive. However, part of our dilemma stems from the fact that the benefits of one objective are often antagonistic to the other. For example, euphenic treatment of many genetic defects has now been accomplished through medical science. Genetic defects such as diabetes mellitus, phenylketonuria, Tay-Sachs disease, hemophilia, and many others are, or soon will be, under medical control. Current medical technology does not provide a cure for the defective gene, but only a treatment of the symptoms that allows the individual to conduct a rather "normal" life. A problem arises on the population level, however, as individuals subsequently reproduce and pass their defective genes on to their offspring. In the past, individuals with severe genetic defects represented genetic dead ends. They either did not live to reproductive age or they did not reproduce at a normal rate. Our attempts to treat genetic defects on the individual level (euphenics) have caused an increase in their frequency in the population as a whole. Such deterioration of the gene pool is, of course, a counterproductive eugenic measure.

Through our understanding of the biochemistry of gene function, we are devising laboratory tests and procedures to identify "carriers" of severe genetic defects. Carriers are individuals who are themselves normal but who, for some particular gene pair, have one recessive form that, if combined with another like itself in the offspring, could produce some severe genetic disease. What is responsible action by parents who are carriers and possess this information? What is responsible action by society in possession

of this information to protect the future of the human gene pool?

Recent developments in fetal monitoring have added to the complexity of the dilemma. For example, through the technique of amniocentesis, cells of the fetus can be extracted from the womb and analyzed. This technique, coupled with the increasing number of clinical tests to identify abnormal gene function, will make it possible to detect more and more genetic defects long before a child is born. Thus, if we can detect a severe genetic defect in a fetus that cannot be treated to produce any semblance of normal human response if the child is born, should a therapeutic abortion be performed? If the defect can be treated, but the treated individual's subsequent reproduction would contribute to the deterioration of the gene pool as a whole and add to society's burden of future treatments, should this fetus be aborted, or should the child be born and treated to live a normal life but sterilized to prevent the addition of his or her defective genes to the gene pool? Or should nothing at all be done despite our advanced knowledge?

Parents may soon be able to choose the sex of their child. However, data indicate that, if given a choice, more parents would have sons than would have daughters. Should society regulate the number of males and females that are best for the population as a whole?

The genetic engineering dilemma is no less complex when viewed from the other angle—that is, the consideration of potential eugenic measures. An example is artificial insemination, a practice already in use and responsible for the production of an estimated 10,000 babies a year in the United States. Should this practice, which is still secretive and personal, be continued and, if so, should its use be indiscriminate, as it generally is now; should it be restricted to certain circumstances; or should it be directed toward the improvement of the population? For a large segment of our population, this procedure surpasses birth control as a morally and ethically unacceptable separation of procreation from sexuality and the nurturing of marital love. What of the use of artificial insemination to allow individuals to lead happier, more normal lives? For example, what of the situation where artificial insemination can produce pregnancy in a woman who could otherwise not become pregnant because the concentration of her husband's sperm is too low? In this case, several collections of the husband's sperms to concentrate their numbers, followed by artificial insemination can produce pregnancy. What of the situation where the husband is actually sterile but the wife is fertile? Should donor sperm be used to enable the couple, especially the wife, to go through a normal pregnancy in the production of their family? And what of the situation where both parents are known to be carriers of the same severe genetic defect and the use of sperm from a donor who is not a carrier of the defect could totally avert the possibility of producing an afflicted child? Finally, what of the situation where both parents, by choice and concern for the improvement of the gene pool of the population, voluntarily want selected donor sperm to enhance the chances that their children will receive a superior genetic complement? Does an individual have a right to make such choices?

Artificial inovulation in the human female is also a distinct possibility. An egg is collected from one female and transferred to another for fertilization and development. This feat has been accomplished in several mammals other than man. It soon may be tech-

nically feasible to collect sperms and eggs and accomplish fertilization in a test tube. Then, at some period in early development, the embryo could be transplanted to the womb of a receptive female, perhaps a woman who was unable to accomplish fertilization and/or support a pregnancy under normal conditions. Could this use of the technique, at the euphenic level, be ethically justified by the medical profession? Would it be morally acceptable to society? Secondly, what of the use of this technique for the improvement of the population through the use of donor eggs and sperms from selected females and males to increase the probability of genetic improvement of the species? If this is unacceptable to us, what do we do if some other nation, our "enemy," begins such a eugenic program?

Research is also progressing on techniques that will make asexual reproduction a reality in the human species, thus avoiding the shuffling of genetic material that occurs during the sexual process. Any time that an individual is judged to be genetically superior, the asexual replication of that individual would retain his or her genetic complement intact and simply multiply its frequency in the population. This technique, known as cloning, involves the stimulation of a single cell nucleus containing the genetic complement of the individual to repeat the developmental sequences of a fertilized egg and produce an entirely new individual. Theoretically it would make it possible to produce a replicate of anyone from a single cell from that person's body. It has been estimated that within 25 to 50 years the technique will be perfected and made applicable to man. Should society replicate its most valuable assets, or is this mode of reproduction unnatural and unacceptable? If used, how would we decide whom to clone and how many copies to make? If we find this morally and ethically unacceptable, what do we do if another country clones its assets (its scientists or its soldiers)? The application of this technique also strikes directly at the concept of the family, for what is the relationship of an asexually produced offspring to its single parent?

Finally, there are recent findings that hybrids may be formed from the genetic material of two different animals when their cells are mixed in a tissue culture. The application of cloning techniques to such cells holds the prospect of producing animal mixtures of various kinds. It has been suggested that subhuman animal-man hybrids may provide a reserve of transplant organs or a subhuman labor force or subhuman individuals for other uses in our society. In the near future someone will have to make decisions concerning the pursuit of this line of research and its application. The existence of true subhumans with some genetic material of man in their makeup creates moral and ethical questions of enormous magnitude.

The implications of genetic engineering have indeed created a dilemma, and decisions must be made. What knowledge should be applied to man and what should remain academic? How far do we extend the humanitarian's objectives of improving the lot of man? We named ourselves Homo sapiens, man of wisdom; our responsibility to the future is to live up to that name.

Condensed with permission from the *Journal of Religion and Health*, 11(4):370–376, 1972. Copyright 1972 by the Institutes of Religion and Health. Reprints of original article from James J. Nagle, Ph.D., Associate Professor of Zoology and Botany, College of Liberal Arts, Drew University, Madison, N.J. 07940

Psychiatry in Prebaccalaureate Education

David R. Hawkins and Vamik D. Volkan

The Mental Health Fellowship Program of the Department of Psychiatry at the University of Virginia School of Medicine is an attempt to deal with the problems of career choice and the need for more relevance in education. The program was conceptualized in 1968 as a means of permitting young people in the middle of their undergraduate years to have an experience to provide a basis for deciding whether or not they would like to pursue a career in the mental health field and, if so, in what role. It also was felt that a program could be designed which would give experiences around which to integrate academic studies in social science and which would stimulate them to continue their studies. It was also hoped that program graduates would spread an understanding of mental illness and its care and would perhaps become volunteer workers if their vocational choices lay elsewhere.

While the Virginia program is primarily educational, the participants also help in patient management. A stipend of $720 each is provided for a 12-week period for eight fellows. The intent is to give the fellows an overview of the services and responsibilities connected with the Department of Psychiatry.

They rotate through the psychiatric inpatient service; child and adolescent psychiatric outpatient service; adult psychiatric outpatient service; psychiatric consultations service (which serves the nonpsychiatric units of the hospital); and psychology, social service, occupational therapy, and recreational therapy departments. Visits to State hospitals are arranged. Individualized supervision is given by staff of the services to which the fellows are assigned.

Conferences and seminars provide a framework for the work experience. Fellows attend the chairman's weekly case conference and diagnostic and therapeutic case conferences on whatever service they are assigned to. Some go on their own initiative to lectures and seminars designed for medical students. Twice a week they have seminars of their own, designed to give them an opportunity to discuss experiences with each other and their teachers and planned to cover didactic material upon which a conceptual base for understanding the mental health field and related sciences might be formed.

The reading for these seminars is selected to cover the life cycle and to show man evolving throughout life as a complex psychological unit. Defense mechanisms, problems of adaptation, and symptom and character formations are explained. The meaning of mental health and illness and approaches to them are discussed, as are the therapeutic potentials and the function of different aspects of the therapeutic teams. The fellows also read *Careers in Psychiatry* and discuss possibilities within the mental health field, with the aid of information from a perusal of articles about professional roles.

Fellows

An ideal fellow is someone finishing the sophomore or junior year, majoring in one of the social sciences, and having a strong interest in a career in the mental health field but without certainty as to details of career choice. Intellectually outstanding students are sought—those who are mature and capable of self-direction and who give evidence of high motivation for learn-

ing and service. There have been 24 fellows (10 women and 14 men) in the program, eight each year.

Progress

Although there was individual variation, there was a trend to increased anxiety when the program got under way each summer. Faced with psychotics who showed unacceptable human impulses or with neurotics whose life style was tragically constricted, the fellows wanted to bring this misery under control as soon as possible. When it dawned on them that the psychiatrists did not have magic answers, they mobilized their own resources and developed "savior fantasies" while manifesting anger against the professionals who could not control the situation and make the emotional suffering disappear. It seemed to the program administrators that those fellows who benefited most were those who resolved their "savior fantasies" and thus became able to adopt more realistic attitudes about the nature of mental illness. Only one fellow developed severe anxiety and asked to be released, but she subsequently decided to remain in the program and later entered graduate school to train as a counselor.

Followup

Followup has been effected by the use of a questionnaire eliciting information on the influence of the program on career choice, continuation of study in related fields, and attitudes concerning mental health.

Information has been gathered to determine whether the program is meeting the goals:

To allow for a rational career choice—All but one of the fellows indicated that the program had a strong influence on career choice.

To serve as a major integrative educational experience—The results left no doubt that there had been a substantial increment in substantive knowledge.

To inform potential future leaders about mental health problems and change some of the usual misconceptions about mental illness and mental hospitals—The way the fellows were able to handle the questionnaire-examination at the end of their experience indicated a sound, realistic notion of mental illness.

In addition to the benefits to the fellows which accrue from the program, there are positive effects on the patients and staff. The fellows increase the manpower pool, they are liked by the patients, and their presence increases the opportunity for various kinds of patient activities. Their fresh point of view is stimulating for the staff as is their willingness to raise questions about the system which those accustomed to working in it do not do as frequently.

This program was not designed to equip the fellows for immediate jobs in the allied health professions. These fellows are highly motivated, well-endowed students who are going in the direction of advanced professional education. However, the program could be modified to train college or junior college students for a new type of mental health generalist, a paraprofession for which many have felt a need.

Condensed with permission from the *Journal of Medical Education*, 47(10):810–816, 1972. Copyright 1972 by the Association of American Medical Colleges. Reprints of original article from David R. Hawkins, M.D., Professor and Chairman, Department of Psychiatry, University of Virginia School of Medicine, Charlottesville, Va. 22204

MENTAL HEALTH NEWS DIGESTS

Research Instrument Inventory Aids Drug Abuse Research

An Inventory of Drug-Abuse Research Instruments has been formed to serve as an archival source for the collection, storage, duplication, and issuance of pertinent research instruments and related material. Now more than 2 years old, the Inventory includes more than 100 research instruments in the areas of: attitudes, access and extent, measurement of subjective effects of drugs, differentiation of abusers, education and knowledge, and program-related evaluation.

The Inventory is designed to aid in drug-abuse research and in the development of other such instruments. Organizations and individuals can save time and expense by submitting materials to the Inventory and referring all instrument requests to the Inventory. A copy of the Inventory will be sent to those who submit instruments with related bibliographies or other materials; others will be sent a copy upon written or telephoned request.

Materials for the inventory or requests for copies should be sent to the Drug-Abuse Research Instrument Inventory, 133 Mt. Auburn St., Cambridge, Mass. 02138; phone (617) 492–0649.

National Clearinghouse for Alcohol Information Established

A national focal point for the collection and dissemination of information on the Nation's number one drug problem—alcohol abuse—has been established by the creation of the National Clearinghouse for Alcohol Information (NCALI). The information service, utilizing modern computer techniques, will operate as part of the National Institute on Alcohol Abuse and Alcoholism, a component of the National Institute of Mental Health.

Among the many nationwide services provided by the Clearinghouse will be: gathering comprehensive alcohol information; replying to public inquiries and requests; establishing a library; using computer systems; providing reference services; distributing documents; publishing the NCALI Bulletin and a quarterly newsletter; developing new materials; and compiling directories of alcoholism programs and federally-supported activities in this area. An extensive warehouse, mailing, and distribution system will be part of NCALI.

For information services write to the National Clearinghouse for Alcohol Information Annex, P.O. Box 1156, Rockville, Md. 20850 or phone (301) 948–4450.

Abortion and Family Planning in the USSR and China

Department of Health data from the Leningrad area during the 1960's have been summarized in an article by N. S. Sokolova of the Leningrad Medical Institute. Cautioning readers that registration of abortions probably is incomplete, Sokolova combines the recorded number of abortions, live births, stillbirths, and ectopic pregnancies and reports their respective percentages for Leningrad city (1963–1967) and for Leningrad district (1961–1967).

From 1961 to 1967 in the Leningrad district the proportion of ectopic pregnancies was stable, seldom exceeding 0.7 percent, and the percent of stillbirths

was even lower. The proportion of pregnancies resulting in the delivery of live babies steadily decreased from 29.21 percent in 1961 to 19.17 percent in 1967, while the proportion of pregnancies terminated by abortion rose from 69.75 percent in 1961 to 79.91 percent in 1967. In Leningrad city the percentage of pregnancies ended by abortion remained at 78 percent from 1963 to 1967. A combining of these data yields an overall rise in abortions from 77.88 percent in 1963 to 79.08 percent in 1967.

The ratio of favorable pregnancy outcomes (live births) to unfavorable outcomes (stillbirths, ectopic pregnancies, and abortions) was 1:4 in 1967. The approximate ratio of wanted pregnancies (live births, stillbirths, ectopic pregnancies, and spontaneous abortions) to unwanted pregnancies (induced abortions) was calculated as 1:2.5.

In the People's Republic of China a system of family planning services has been developed and implemented with the aim of regulating family size. Paramedical workers called "barefoot doctors" plus designated members of the Revolutionary Committees in communes, factories, and residential areas are local links with the family planning program. Information dissemination and education is coordinated through the Revolutionary Committee; the barefoot doctors provide simple medical services and carry contraceptives for immediate distribution. Throughout the People's Republic all methods of birth control are available without charge.

In urban centers the pill is the preferred contraceptive, followed by the intrauterine device. When a woman is diagnosed pregnant and declares that she does not want the baby, an abortion is immediately available during the first trimester of pregnancy. In cities nearly all early abortions are performed by nurses using vacuum aspiration; in the communes trained barefoot doctors or midwives induce abortions. After an abortion a woman gets 15 days of paid vacation; if she also has an IUD inserted postoperatively, she is granted 18 days vacation.

China's population growth rate is now less than 2 percent, and current trends indicate that the country may achieve their goal of a 1 percent population growth rate by the year 2000. (Adapted from *Abortion Research Notes,* 1(3): ARN Supplement No. 3, 1972.)

APA Expresses Concern Over U.S. Treatment of Its POW's

The type of rehabilitation of U.S. prisoners of war returning from North Vietnam is a major concern of the 143-member Council of Representatives of the American Psychological Association. This interest was stimulated by reports that several recently released POW's had been virtual prisoners in their own country during the Government's rehabilitation process. With the expected return of large numbers of POW's in the near future, the Council would like to know what precautions are being taken to ensure that the psychological briefing or treatment given to each returnee be aimed solely at his own rehabilitation and that no attempt be made to manipulate his political opinions.

The APA's Board of Social and Ethical Responsibility has been directed to find out what the Defense Department plans to do once the prisoners are returned and to make a report at the Board of Directors' February meeting. The Council also feels that the American people should be informed of these plans.

recent nimh publications

Single copies of these publications may be obtained from the Public Inquiries Section, National Institute of Mental Health, Room 15C17, 5600 Fishers Lane, Rockville, Md. 20852. A complete list of all publications available from the NIMH may also be obtained from the Public Inquiries Section. If a price is given, the publication may be ordered in quantity from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Enclose a check or money order payable to the Superintendent of Documents.

Abstracts of The Psychoanalytic Study of the Child. Volumes 1-25. A comprehensive compilation of abstracts of all the papers which appeared in the first 25 volumes. Eleven categories reflect major areas of investigation and clinical experience. Prepared by the National Clearinghouse for Mental Health Information in collaboration with the Committee on Indexing of the American Psychoanalytic Association and in consultation with the Editorial Board of *The Psychoanalytic Study of the Child.* 225 pages. Author and subject indexes. DHEW Publication No. (HSM) 73–9007.

Facts About College Mental Health. Discusses some of the emotional problems confronting college students, the various supports available, and the goal of counseling. DHEW Publication No. (HSM) 72–9154. 15¢

Psychopharmacology Abstracts. Vol. 10, No. 4, 1971. Abstracts of new developments and research results in the field of psychopharmacology. Subject and author indexes. DHEW Publication No. (HSM) 73–9003. $1.

Veterans with Mental Disorders 1968-1970. A 133-page booklet giving age, sex, diagnoses, and time on books for veterans hospitalized with psychiatric disorders within the United States (includes Hawaii and Alaska). Data is based on the annual census conducted by the Veterans Administration. DHEW Publication No. (HSM 73–9021). $1.25.

Administration in Mental Health. A new pilot publication geared to making this field visible as a professional career and to promoting research and more effective delivery of mental health services. Articles on mental health problems and prospects in administration, impact of catchmenting, teaching MH administration to psychiatric residents, and a model for analysis of MH programs. Book notes and abstracts. DHEW Publication No. (HSM) 73–9050. $1.25.

Psychiatric Services in General Hospitals 1969-70. Mental Health Facilities Report, Series A, No. 11. Characteristics of inpatient and outpatient psychiatric services, staffing patterns, patient characteristics are dealt with. Detailed tables. DHEW Publication No. (HSM) 72–9139. 70¢.

Subscription Form for the Mental Health Digest

To: Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

Please enter my subscription to the Mental Health Digest.

$_____is enclosed. (Check, money order, or Supt. Doc. coupons)

Please charge this order to my Deposit Account No. _____

Name _____
(please print or type)

Address _____

City, State, Zip _____

An annual subscription to the Mental Health Digest is $6.50. For foreign mailing, add $1.75. This additional fee is not required for Canada, Mexico, and Central and South American countries except for Argentina, Brazil, British Honduras, French Guiana, Guyana, and Surinam.

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION
NATIONAL INSTITUTE OF MENTAL HEALTH
5600 FISHERS LANE
ROCKVILLE, MARYLAND 20852

OFFICIAL BUSINESS
Penalty for private use, $300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF H.E.W.
HEW 396

MHD AUG-73
UNIVERSITY MICROFILMS
JOY REED, SUPVR PERIODICALS
300 N ZEEB RD
ANN ARBOR MI 48106

DHEW Publication No. (HSM) 73-9001
Printed 1972

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Health Services and Mental Health Administration

National Institute of Mental Health